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Editorial

User supported software

Software pricing has always been a sore point with consumers Australia wide. Piracy is a sore point with distributors. One seems at a loss because of the other, and neither will budge to make room for a change.

Now there is an alternative and a timely one at that. Supplies of C64 software are starting to tighten up. Sales are dropping. That is not to say that we won't see any new titles for the C64 in the future. However, we will see fewer. The means by which we are able to obtain software is also likely to change. More mail order, and more user supported titles.

The concept is a variation on Freeware - where you only pay if you like. This method is still subject to abuse. However Userware is different. You pay up front, but what you get is top value software. This month Adam Rigby reviews one such program, *The Write Stuff*. His conclusions say it all.

The principle is that user groups and other similarly structured organisations, such as BBS's, become distributors. Their margin covers the cost of manufacture, there is no expensive advertising or packaging, and the author, hopefully, gets reimbursed for his or her efforts.

At the moment, such titles originate primarily in the USA, where sales can assure a reasonable return. In Australia, such programs may find themselves capturing a small percentage of an even smaller market of honest people. If the movement kicks off, and definite sales patterns can be ascertained, then the scene will change, and I might even get into developing C64 programs!

A likely candidate for such a scheme would be our own disk magazine, *Suite 64*. In responsible hands, we could hope to cover the costs of programming, whilst providing the disk cheaply.

On commercial products, a \$49.95 program may only see \$4 into the author's hands. Therefore, if a Userware version of the program could sell half as many copies, then the author would expect \$8 for each disk, and one quarter as many copies would lead to expect an amount of \$16 and so on. If the line could be developed, with user groups promising minimum quantities, even lower prices could be afforded.

The Write Stuff is a quality \$60-70 program. Under Userware it sells for \$20, plus \$5 for the manual. Very reasonable. I encourage this wholeheartedly. The main reason for its success has been the high quality of the product and the strong support from User Groups, acting responsibly, and ordering rather than copying it.

Perhaps interested user groups should talk further with distributors of *The Write Stuff* in Australia, South Australian Commodore Computers User Group Inc, on (08) 210 3712. If it works on a large scale, we may see some more of the same.

Andrew Farrell

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LETTERS

TO THE EDITOR

Video titling

I have a C64, which primarily I use for video titling/scrolling etc., - as my major hobby lies more with family videoing - holidays, group trips, tours, functions etc. I have the disk *Video Title Shop*, and am looking to vary and expand my disk library for above purchases.

Looking through and reading your April 88 magazine I notice that you list contents of "Disk Magazines" some of which pertain to the C64.

However, I am unable to determine from the precis as to whether any would be suitable for my purposes - i.e. edge to edge of screen - without menu displays (as is the case with *Video Title Shop*). Perhaps you would care to respond, as to suitability (along the above lines) whereupon I could then order.

I.J. Thompson

Wantina South, Victoria

Ed - Disk Magazine 6 has a sprites in the border scrolling message program, this could be of some help to you.

Back issues

I would like to say thank you for such an entertaining and sometimes amusing magazine. I only wish I had known about it in 1984 when I bought my first 64.

From the first moment I started using my 64, I have never been able to use it for any longer than two hours, then I lost the use of eight keys 7 and 8 down to V and B, it then took from 12 hours to about a week before the keys re-

turned for me to use.

I did contact Commodore and was told that I was probably not using my 64 properly. After a few knock backs I gave up and put up with it until this month. I went and bought another 64 which includes *Magic Desk* and now I have a perfect 64, which I can work with for as long as I like and can leave on with no problems. I assure you, I was very disappointed with Commodore for a very long time.

The only magazines I have are September and October 1987 and Jan, Feb, and March of this year plus the latest annual. Do you have any back copies, especially the annuals?

In reply to the letter in the February edition from Dave Evans of Ballarat headed Old Timers, well, here I am a female and I do not think myself as an old timer - just a mature person.

I use my 64 (my new one) for games, *Magic Desk*, *Print Shop*, *Newsroom*, *Mini Database* etc.

I only wish I could learn programming!

Are there any 64 users who can help me?

Marianne Johansen
West Ryde, NSW

Ed - The Annuals were our first yearly publication and no previous issues are therefore available. However most of the previous issues of Australian Commodore and Amiga Review are available, phone Tristan on (02) 398 5111.

1750 Ram expansion module

I have recently been presented with a 1750 ram expansion module for my C128 computer and am, to say the least, disappointed. When used in the CP/M mode the module is an excellent addition, but is virtually of no use in the C128 mode unless one can handle machine language. Reading the exceedingly brief manual, I get the distinct feeling that even a knowledge of machine language would not greatly reduce this shortcoming.

Considering the cost of the module is approximately \$350 and in the light of this shortcoming, it may prove beneficial to readers if a review was undertaken of this hardware item.

I would be grateful if you could throw some light on the following:

1. Is there software available which will enable the RAM expansion module to be used in conjunction with wordprocessing (such as Timeworks *Wordwriter 128*) and spreadsheets in the C128 mode?

2. Is there a more comprehensive manual or similar publication available?

In *Commodore Review* August 1986, in the article dealing with GEOS (Turn your Commodore into a wimp), mention was made of a C128 GEOS which would support the RAM expansion module using it as either a RAM disk or as additional data storage. Could you please indicate the current state of affairs regarding this.

If your research indicates that there is no solution in the pipeline,

would it be possible for one of the 'bright lights' at *Commodore Review* to write some software so that the RAM expansion could be used in the C128 mode in the same way it can be used in the CP/M mode? I feel there would be a market for such software.

I look forward to *Commodore Review* each month. Keep it coming.

Nino Paccagnella
Mundaring, WA

Ed - Quite a few WP's make use of the 1750 RAM card; PaperClip III and The Write Stuff (review this issue) are ones that I recommend. As to GEOS 128 using the RAM - well, it does.

Pen pals

I buy your magazine every month and I feel there is only one thing missing, a pen pal page. If you do decide to include one I think it would go well, and I would appreciate the following being included.

My name is Angela, I own a 128/64 and disk drive and I would love some pen pals to swap hints, tips etc. I promise to answer all letters. Write now.

Angela, 10 Salisbury Avenue,
Shepparton, 3630 Victoria.

I like Arcade Action, it's well written. I also think it's a shame software houses don't bring out games specifically for the 128.

Angela Simpson
Shepparton, Victoria

Ed - You could be the first Pen Pal in ACR.

SX 64 drive

I purchased a SX-64 some years ago and just recently the disk drive

unit has failed to load anything. I have heard that the disk drive units are a bit dodgy at times. What I would like is any information as to how the disk drive unit can be re-aligned, as I believe this is the problem. I have a turbo-rom chip in the drive as well.

I have read an advertisement in the UK *Commodore* magazine (CCI) about a re-alignment kit for the SX-64 but would like to purchase one from an Australian distributor, but I have not seen one advertised. If you could help me with this I would be most grateful.

Your magazine is very good. I think a good idea would be to include a technical tips column. Also more mail order firms advertising software etc, as living outside a capital city we have no Commodore specialist and I know that there are hundreds if not thousands of Commodore 64, 128 and Amiga users in Whyalla. We do have an Atari retailer here though!

Jon Hale
Whyalla, SA

Ed - Although kits may prove handy, disk drive alignment is best handled by the professionals to get good results. Any Com Care Centre should be able to help you out.

Plus 4/C16

Firstly I wish to thank you for an informative and entertaining magazine.

A few years ago, I made my first mistake, by buying a VZ200 computer. However, by fitting it with a plug-in unit, (Dick Smith kit) I was able to use it as a dedicated radio teletype terminal, in another of my hobbies - amateur radio.

My second mistake followed with the purchase of a Plus4, without fully understanding its lack of sprites and compatibility with the

C64. (I finally did the sensible thing by buying a C64 and 1541.)

I wonder if a member of your staff, or a reader, can suggest a dedicated use (besides a door stop) by programming, plug-ins or a rebuild for the Plus4. Its release must represent the most misguided planning ever by Commodore, and has probably proved to be a complete waste of money for most purchasers of the Plus4 (or C16).

Geoff Barron
Cootamundra, NSW

Ed - With BASIC 7.0 these two machines are great "Hacking" tools. Unfortunately they don't have a great deal of software available in Australia, however, in England it's a different story. If you are desperate write to a few English distributors and see what's available.

Mail orders

I am sorry to be writing this letter, but I'm afraid the state of things for the humble mail order C64 "nut" is driving me just that!

I know we should all support the specialty computer shops because they are the ones who make their livings helping satisfy our wants, desires and whims and coming from a small country town where the local shops have to struggle against big department store competition . . . But is there anywhere in Australia a computer shop that has a reasonable mail order service? When I bought my C64 by mail order the delays were incredible and the excuses became weaker. I was urged to send my order priority paid so that they could send it to me quickly. It arrived two weeks later after many phone calls long distance (I can get a letter from Sydney the next day, Melbourne two days).

Again I tried for software from a

reputable firm that advertises in your magazine only to be promised "we'll ring you back on that" I chased them up several times over the next few days, "O yes we're still looking into it". They could be for all I know - I got the software from a dreaded department store.

Finally I wanted a program that a store in Melbourne imports. I checked price and availability and sent an order. I waited a week and no word. So I rang to be told it takes us about 10 days to catch up on letters if then. I was then told to charge the order on my Bankcard and it would be sent that afternoon. Well you guessed it I rang today and no record of my order was to be found, that was after three lengthy STD calls. I am still hoping that maybe this week I might get the program.

My points are these:

1. It is little wonder people pirate software because it is easier than trying to buy it by mail order.
2. Why can't these people when they take your phone number "just in case of problems" use them.
3. In terms of software it is cheaper, I know from personal experience, to buy from overseas. It is also quicker!

Please, please can the mail order stores, or ones that advertise "mail orders welcome" get their act together. We can't all get to the big smoke, but we use the same currency as the rest of the nation and want to spend it in Australia. Thanks for your mag. I look forward to getting it each month.

Paul Walliker (Rev'd)
Eugowra, NSW

Ed- If you think that this is bad, the average waiting time in U.S.A. is from 4-6 weeks. It is true that some Mail Order companies don't have their act together, if you

are having particular problems tracking down a piece of software you could give ACR editorial offices a ring on (02) 817 0011 and we can usually point you in the right direction.

A golden oldie

Here's another "oldie" in my 66th year. Having absolutely no contact with computers during my working life, and retiring six years ago, I suffered a minor stroke soon after retirement. Whilst not physically damaged I had a problem with my speech and retentive memory. My daughter gave me a UZ200 to play with, I became hooked on it, I then got on to a Tandy Co. As these machines were only tape machines I was thinking of getting a disk drive for the Tandy when my wife and son presented me with a Commodore Propack for my birthday. Now with a 1802 monitor and a Citizen 120d printer I'm set.

The Geos disks that came with my unit are a little different to the one you describe in this month's article. I have a system disk to boot the program with then a two sided disk with System backup on one side and Applications on the other. There was no work disk, you have to create your own which is a copy of the Applications disk. When I tried to create a copy of the System disk as you did in your article the disk drive nearly shook to pieces and the disk shows up error "1:20 DRIVE A TRACK 03 SECTOR 11(HEX)"

The System and the backup both display this error "1:20 DRIVE A TRACK 03 SECTOR 11(HEX)". However it appears to have placed enough of the program in the memory to open the work disks. This is being typed with the Geos program which to me is pure magic.

The past three years playing with these computers have assisted my recovery in getting my brains back into gear so that today I am in better health than when I retired.

I found the Commodore user manual not as good as the manuals that came with the others. However I came across a heap of *CompuTel's Gazette* magazines at a trash and treasure sale. They go back to 1985 and they have been of great help in learning the ins and outs of programming.

I share the monthly *Review* with another retired neighbour he bought an Amiga 500 as a first computer so he gets the inside of the magazine whilst I have the outer.

G Woodwell
Garra, ACT

Ed - It is fantastic to hear of someone that has benefited this much by using a computer.

Transferring programs

Mark January in *ACR* (Vol.5 No.5) asks about transferring programs from tape to disk.

An English company Do Soft has released several disks for just this purpose (tape to disk).

I have used their routines for some time now and with great success and they cater for multi part loads. Do Soft are also the people who wrote the software for Action Replay which I have also used (version 4).

Could you please pass on details of this to Mark.

Do Soft usually advertise in most English magazines (Commodore) during the past couple of years.

Bill Woolford
Narara, NSW

The Fleet's in town!

Eric Holroyd reviews a new word processing and database package for the C128 and C64.

THIS *Fleet* being one of the best productivity packages I've seen for a long, long time. Previously only available by mail order from the USA, it's now "in town" by way of a newly appointed Australian distributor.

I'm looking first at *Fleet System 4* for the C-128 which comes with three disks: the excellent word-processing program itself, a 90,000-word expandable spell checker/dictionary, a very quick integrated thesaurus, and *Fleet Filer* which is a superfast database manager. It's all in 80 columns on your RGB or properly-connected composite monitor.

Word processing

I'll start in the word processing department, and I'd have to say that this alone is well worth the \$89 suggested RRP. It's a powerful program with all the features you'd expect plus a lot you might not. True on-screen word wrap is provided, plus a "preview" feature that shows boldface, underlined text etc, right there on the screen before you decide to print it. Headers, footers, regular and numeric tabs, search and replace, cut and paste etc. It's all here, plus other things like "Find" which does just that with a word or string up to 44 characters long.

Fleet's formatting commands will be a familiar concept to many people, for instance *ral* is for right alignment of text, *lm* is left margin, *rm* is right margin, *cn* is center, *ju* is justify etc etc. If your printer supports underlining, subscripts, superscripts, double strike and whatever, then *Fleet System 4* does too. Press FCN,O for (O)utput, P for (P)rint and off it goes.

Most commands are simple two-character jobs like that, always preceded by the FCN key. Two keys have been

programmed to act as FCN, the Run/Stop key and F1. So, to get a directory on Drive 0 for instance, just press FCN and 0. Like all good productivity software, *Fleet System* supports two drives so obviously FCN and 1 will display a

"A powerful program with all the features you'd expect plus a lot you might not"

directory on Drive 1. The display asks if you want to see (U)ser, (S)eq, (P)rinter, or (A)ll files. *Fleet System's* text files are USR files, and the SEQ option is there to let you export/import to *Fleet Filer* and "most major word processors".

Printing

As regards printing, there are drivers for many of the popular printers and it's a simple job to define yours together with screen/text colours etc in your "default file" for automatic operation. Paper feed can be hand-fed single sheet or automatic tractor feed. The printer will stop at the end of a page when using single sheets for you to insert a fresh sheet. Multiple prints can be selected, up to 255 copies of the same document.

Printout starting point is selectable too, very handy if you've already printed the first nine pages and the paper's jammed. No problem, just tell *Fleet System* to start printing at page 10 and it will. This is not a common feature in lower end word processors but it's a beauty and will save you lots of paper.

Before you run away with the idea

that this is going to be a hard one to learn, let me tell you that it's not. Anyway, there's a complete tutorial built in which will teach you very quickly what it's all about. I recommend that you work through the tutorial to make sure you understand all the finer points, thus getting the full benefit from all the features.

Thesaurus

The thesaurus works almost instantly to give thousands of synonyms ("like" words) and antonyms ("opposite" words). The large dictionary works just as quickly and its 90,000 existing words can be expanded with a further 10,000 words peculiar to your own profession or business. The pack and brochures state that it "will spell check a 10 page document in 45 seconds". I didn't altogether believe that so I ran some tests, only to find that it usually did the job in less time, usually around 41-44 seconds for my 10-page test letter with deliberate mistakes.

A press of the HELP key will drop down a menu listing subjects by letter and touching the appropriate letter key brings down another screen full of info and commands, so you can operate most functions without recourse to the excellent manual. This by the way, is in simple language and it's a good handbook, spiral bound to lie flat on the desk. The tutorial is fully explained in the manual and there are sections on trouble shooting, extra printer functions and other helpful hints.

There's much more in this very versatile program, like the "Extra Text" screen which you can use like a scratch pad for storing information, support of up to four disk drives, setting up and using a RAM disk, document word count etc.

The set of "special features" includes the ability to create numeric fields in the text and perform calculations with them.

Database

This would be great at tax time, particularly in view of the integrated *Fleet Filer* which comes with *Fleet System 4*. This is a full-featured database that competes very favorably as a stand-alone program with other major database managers. Coupled with the *Fleet System* word processor, spell checker and thesaurus it becomes an invaluable tool.

For starters you may have up to 5000 records. Each record may have up to 22 text and/or numeric fields. Up to 255 characters per record are allowable. This is a staggering amount of information. Let's look at a chunk of data such as the following address:

Prime Artifax Software
23 Bonnefin Road
Hunters Hill, NSW 2110
Phone (02) 817-0011.

This has a total of 80 characters (including spaces) and if we were to use *Fleet Filer* as an "address book" with data such as that we'd have space for 1275 addresses! We could add other fields to add to the address such as "contact names", type of business or any other type of information you wish to use. Wife's maiden name perhaps, or what's the family pet?

When working with the *Filer* you'll see an on-screen "meter" which tallies the number of records you've entered. It also shows how much memory is left by way of the number of screen characters still available. The screen menus are easy to operate and all major features are available from a single keystroke.

Storage of information is of little use unless it can be retrieved quickly and sorted as you wish. Let's add just two

more fields to the above address, say "type of business" and "number of employees" and then key in all the people/businesses we know. From there it's a very quick job to extract all businesses with 10-12 employees operating in the software industry and situated in areas with Post Codes ranging from 2010 to 2985.

Most good database programs will do this kind of work but *Fleet Filer* does it very very quickly because it's memory-based rather than relying on constant disk access. Being written entirely in machine code too, ensures maximum operating speed, also data storage space is kept to a minimum. Again, a tutorial included in the manual will teach you the program quickly if you take the time to work through it.

Fleet Filer also lets you do multiple calculations between fields and you may replace current data with the results. Tables of information can thus be easily created. This gets me back to income-tax time and the value of this suite of programs then. You could use the *Filer* to work on the figures, print it all out with the powerful built-in report generator, switch to the word processor to write your covering (begging for mercy?) letter, and if you wish, use the multi-column label-making feature to print a mailing label to send it with.

Very simply, *Fleet System 4* is an excellent word-processor with the ability to swap data back and forth with the *Filer* and vice-versa. The spell-checker, dictionary and thesaurus are great enhancements and the whole package is truly impressive.

For the 64 too

The good old C-64 isn't left out of all this. *Fleet System 2+* is the word processor for that machine and it includes *Fleet Filer* too.

Again it's a three-disk package and with very similar features.

The word processor is fully menu-driven and has pop-up windows plus the "Extra Text" screen as in the C-128 ver-



sion. The screen displays are slightly different but the commands are just as easy and once again it's menu-driven and very user-friendly. The thesaurus and dictionary are the same size as the C-128 version and the *Filer* offers exactly the same record sizes as those stated above for the larger computer.

Fleet System 2+ has all the search and sort functions discussed above and criteria relating to any number of fields may be used. Full or partial searches are allowed and the "=" sign is used as a wildcard so that "=and" will recognize "sandy", "wanderlust" and even "Andrew" as matches. Of course, perfect matches may be specified with the < and > symbols being used to find something greater than (or smaller than) a specific reference.

If you're brand new to the database concept then this is for you too. The manual has ten pages of explanation to take the mystery out of databasing and leads straight into the tutorial proper. Even if you already own a previous version of a *Fleet System* word processor you can buy *Fleet Filer* separately and datafiles previously created can be merged into it. The programmers seem to have thought of virtually everything with this versatile package. It's fast, easy to learn, and it's efficient. I'm still not sure if the word *Fleet* in the title means quick (as in fleet of foot) or if it's used to mean a convoy of programs. Probably both!

For C-128: *Fleet System 4*, including *Fleet Filer*, \$89 RRP.

For C-64: *Fleet System 2+*, includes *Fleet Filer*, \$69 RRP.

For C-64 and C-128: *Fleet Filer* by itself, \$49 RRP.

Distributed in Australia by Computermate Products (02) 457-8118. ■



The Write Stuff

All the word processing power you need for \$30 - sounds unbelievable! Adam Rigby investigates.

Last month I reviewed a word processor called *PaperClip III*. It rated very well except for the fact that it ignored some of the more simple aspects of word processing such as cursor movement.

The ability to move one word at a time was totally absent. It is simple things such as these that make word processors either good or bad. *EasyScript* has survived for such a long time on that alone.

The Write Stuff is very powerful as well as being very simple to use, even if it does not have some of the more specialised commands that *PaperClip III* has at its disposal. The number of times these commands get used would not be significant anyway.

Before I jump into reviewing *The Write Stuff*, I should explain the reason for the extremely cheap price of the product. *The Write Stuff* has been declared as USERWARE, i.e. USER promoted and distributed software. The user gets commercial quality software at a very good price, and the author of the software gets reimbursed for his time and effort. In addition, user groups are happy to distribute it at a markup that is sufficient to just cover production costs. This gives a retail price that will hopefully prevent piracy, as everyone should be able to afford a genuine copy.

The prices are as follows:-

The Write Stuff package including 12 page booklet - \$20.

Reference Manual - \$5.

Keyboard Overlay - \$3.

Postage and handling for one or all of the above - \$2.

There is a manual maker included on the disk so many people will find they are able to operate *The Write Stuff* with-

out the added expense of a manual, but for \$5 I think that most will bear the extra expense if for no other reason than to save printer paper.

Once the title page has been loaded you must choose between BB Writer, BB Talker, BB File Reader and BB Customizer.

BB Writer

One thing about this program that struck me was the ease with which you could customise the whole setup to your needs. The system comes with its own modified character set, which can be modified by the user by *Ultrafont* if you happened to have a copy - otherwise I am sure there would be plenty of other character set editors that would allow you to modify the current one.

This among many other modifications are discussed in enough detail in the manual for most people to understand - it might however daunt the raw beginner. Everything from changing character and screen colour to setting up your own fast DOS from programs such as *Fast Hack'em* can be changed to suit you, which is something not covered by most programs today. This is unfortunate because many people don't like mucking around changing the colours of the program to suit themselves rather than the programmer every time they boot up. It is very simple to create a system similar to Preferences on the Amiga - why other software house have not done what Busy Bee Software have done with *The Write Stuff* is beyond me.

The Write Stuff has probably the most extensive on-line help system that I have seen on a C64 program, in fact it is basically the

manual on disk. As mentioned previously, there is a manual maker included on the disk so that you can print out the entire manual.

Ease of use is very important and *The Write Stuff* comes into its own in this department. Here is a basic Key Summary.

1. CRSR keys.

The cursor keys behave normally within a paragraph, moving up, down, right and left. The cursor cannot move to areas of the screen outside a paragraph. If you move the cursor down and push against the bottom of the screen, the screen will scroll up by one sentence. Pushing against the top of the screen will scroll the screen down by one sentence.

2. BACKARROW key.

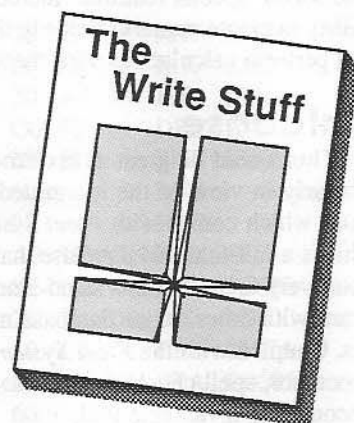
In edit mode the BACKARROW key is used as a backspace key. The backspace works like the space bar only in reverse. It turns the character to the left of the cursor into a space.

3. HOME key.

Pressing the HOME key moves the cursor to the top left corner of the screen

You can even toggle on the more efficient Dvorak keyboard instead of the usual QUERTY. The Dvorak keyboard is arranged as follows:

'	,	.	p	y	f	g	c	r	l	/	*
a	o	e	u	i	d	h	t	n	s	-	
;	q	j	k	x	b	m	w	v	z		



The printer codes make things easy

Use Cursor keys and SPACE BAR to edit.

Enter up to 3 control codes (0-255) to toggle each feature ON or Off

Feature	Turn ON	Turn OFF
Boldface	27,71	27,72
Double-width	14	15
Emphasized	27,68	27,70
User-defined		
User-defined		
Italics	27,52	27,53
User-defined		
User-defined		
User-defined		
Near LQ mode	27,52	27,53
RUS video	18	146
Subscripts	27,83,1	27,84
Superscripts	27,83,0	27,84
User-defined		
Underlining	27,45,1	27,45,0
Condensed	27,15	27,80

Press F1 when finished.

- which is exactly what it normally does. If you press the HOME key again, however, the cursor will move to the beginning of your text (if it was not already there).

4. CLR key.

Pressing the CLR key will not clear the screen. Instead it moves the cursor CLear to the bottom of the screen (or end of text if visible). Pressing it again will move the cursor CLear to the end of your text (if it was not already there).

5. STOP key

Tab key. If the cursor is near the beginning of a paragraph, pressing STOP will have no effect. The Final Cartridge will exit you to BASIC when tabbing unless disabled.

6. RUN key.

If you press SHIFT and the RUN/STOP key, six blank lines will be inserted at the current cursor position. This feature is useful for creating a space to add a sentence or two to a paragraph.

Function keys

The special function keys (F1-F8) may be used to move the cursor quickly about your text.

F1 moves the cursor to the next word (any text preceded by a space). F2 (SHIFT-F1) moves the cursor to the previous word. F3 and F4 moves the cursor forward or back by sentence (any text ending in a period, exclamation, or question mark). F5 and F6 moves the cursor forward or back by para-

graph (any text ending in a RETURN MARK). Pressing F7 displays the next screen - very useful in proof reading your document. F8 displays the previous screen (actually the previous 760 characters). Use F7 and F8 to move rapidly through your text.

As you can see the whole layout is simple

and easy to use, with the emphasis being placed on cursor movement around your document which is very important when dealing with larger amounts of text.

Working with the printer

Most word processing packages today require setting up to work with your printer and sometimes this can be both a pain and completely bewildering. However in the case of *The Write Stuff* things are made nice and easy for you.

In the manual that comes with your printer you will have been given a list of control codes to turn on and off such things as BOLD, ITALICS and UNDERLINING. To get your word processor to send these codes is not always an easy task. However, TWS has made life very simple by allowing up to three codes to be entered for each of the attributes to be turned on and then turned off. It's as easy as copying three numbers out of your

printer manual.

To preview your work before it goes to the printer there is a high-res 80 column text preview option that allows you to see any mistakes in layout before they end up as hard copy.

When you become more familiar with the package you can use the Command mode which allows the more powerful commands to be used much more quickly and with fewer keystrokes.

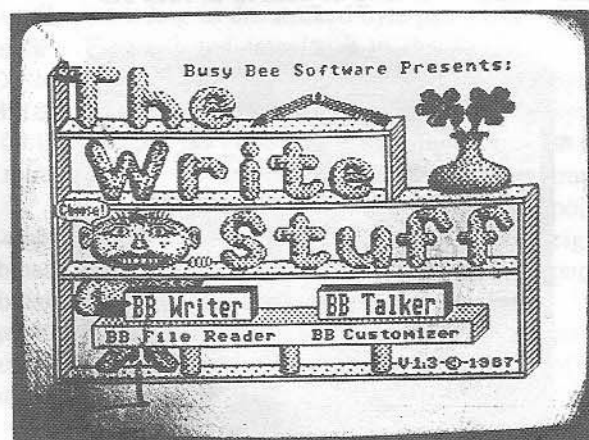
On the subject of being economical, there is an extensive list of macros that can be used when typing to effectively increase productivity by a factor of 25% or even more. The way the system works is the definition of the macro is taken from a file that can be edited by you using the normal word processing features and when the program boots up it reads this file and set up the macros in memory. When the macros are turned on they can be entered just as normal keystrokes such as:-

S [SPACE] will bring up "Sincerely yours, ".

Since the macro appears as soon as you type the space there is no interruption of typing when it is all up and running.

It is easy to see that the package is both simple to use for a beginner, and has many powerful features you can use when you become more familiar with it. This word processor has a very good feel to it and definitely a fantastic pricetag.

One feature missing from *The Write Stuff* is a spelling checker. Previously I held the opinion that a word processor without a spell checker was no good for anything - I think that has something to do with my spelling ability. But after seeing this program I have changed my mind - this package is so good, why not just proofread and use the good old dictionary. Better still, buy a separate spelling checker. Comment: Fantastic. Power: 95. Ease of use: 95. Value for money: 100. Overall: 96. ■



Protutor 128

An accountancy learning package

This is another software package from Professional Software Inc., the makers of the excellent Fleet System word processing/filing suite.

IT'S A UNIQUE idea and is aimed specifically at accountancy students, employees of finance houses or indeed anyone interested in learning the basics of the subject.

Protutor has over 3000 accounting transactions on disk for students to practice on and they're spread over six subject modules. These are two to a disk in the three-disk set and are:

- Debits and Credits
- Accounting Equation
- Bank Reconciliation
- Journalising
- Trial Balance
- Adjusting Entries

The program graphically reproduces ledgers, accounts and balance sheets etc to let the student work in an authentic environment.

There are lots of HELP screens available from on-screen menus and practice/work is carried out with simple key strokes.

Randomly generated amounts covering charges, deposits, cheques etc ensure that when preparing a Trial Balance a completely new situation arises each session. For journalising transactions the screen faithfully reproduces an actual ledger page to simulate "on-the-job" training and as in all aspects of this software the student gets a score rating to show progress.

The manual is very good and its table of contents lists the various procedures which are encountered in day-to-day accounting work. Chapter headings include:

- Capital
- Revenue
- Accounts

- Adjusting for Depreciation Expense
- Preparing Journal Entries
- Recording Expenses
- Buying Assets on Credit
- and a further 20 associated subjects

There are some very clever teaching ideas in *Protutor* like the HELP screens which may be called up in mid-transaction. A touch of the "H" key replaces the worksheet with instructions and the same key brings the work back to continue. If there is doubt as to what the appropriate answer should be then the "T" key toggles a Tutorial memo on and off at the top of the screen, prompting the correct answer.

The manual suggests strongly that the student goes through the sample and practice session when first using the package, explaining that "the sample shows how the program works and the practice question helps you get started". A good concept, especially as all necessary instructions are right there on screen.

The accountancy student learning alone can use *Protutor* to work at his/her own pace at home and practice for as little or as long as desired at each ses-

Reviewed by Eric Holroyd

sion. The program is designed specifically for that purpose as purchased.

To teach a number of students in a class situation however, there is a special version available. It's called "Protutor plus Instructor Utilities". This is a complete *Protutor* plus an extra disk and manual covering the extra programs which aid the Instructor in teaching the concepts as laid down in the program.

Utilities on the disk allow the instructor to see listings of students and the modules they've completed, print or delete student record(s), lists of transactions, charts of accounts and much more.

Diagnostics of student errors are available to the instructor via the utilities package and all are fully explained in the instructor manual. There's also a complete Master List of Transactions in the manual for instructor reference.

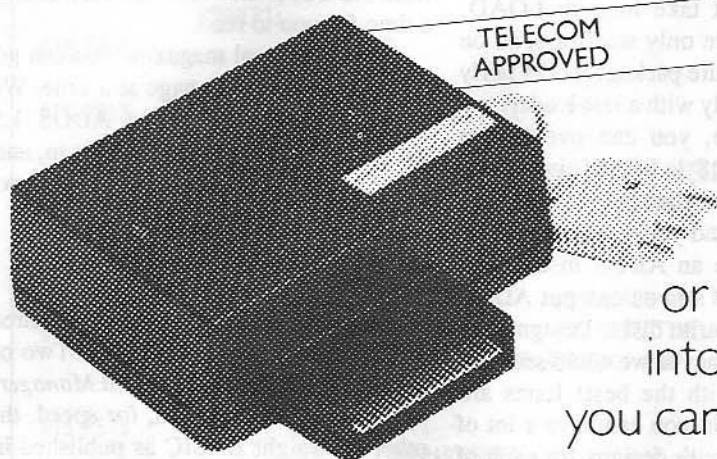
Although I'd be the first to admit that accountancy isn't my best subject (that's why I pay an accountant to do my complicated income tax return each year) I can say that I found this to be a very interesting and well thought-out package with much to offer students. Seems to me they'd learn quickly with this modern "hands-on" approach either individually or under an instructor. *Protutor* is certainly worth investigating and of course it's a legitimate tax-deductible expense!

Computermate Products (02) 457-8118 are the Australian distributors. ■

TRIAL BALANCE			
ACCOUNT	DEBIT	CREDIT	
448 MISCELLANEOUS INCOME	59 888		
540 RENT EXPENSE	3 249		
550 MISCELLANEOUS EXPENSE	1 888		
510 ADVERTISING EXPENSE	2 888		
410 SALES	39 387		
		540 INTEREST EXPENSE	19 438
		570 SALARY EXPENSE	3 888
		520 DELIVERY EXPENSE	920
		530 INSURANCE EXPENSE	4 888
		510 CAPITAL	9999999
410 CAPITAL	44 454		
410 SALES		39 387	
448 MISCELLANEOUS INCOME		59 888	
540 RENT EXPENSE	3 249		
550 MISCELLANEOUS EXPENSE	1 888		
510 ADVERTISING EXPENSE	2 888		
540 INTEREST EXPENSE		19 438	
570 SALARY EXPENSE		3 888	
520 DELIVERY EXPENSE		920	
530 INSURANCE EXPENSE		4 888	
510 CAPITAL		9999999	
	44 454	39 387	2 REVENUE & EXPENSE ACCOUNTS
		59 888	
			Do you want to see the balance sheet?
			Y/N

Practice preparing a Trial Balance using various accounts and balances that you can select.

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John Singleton Advertising COM 0147

— Disk Magazine 10 —

user's guide

THEY KEEP getting better, and issue ten is no exception. It's been a while in the making. As usual, we're not short on excuses.

Australian Commodore Review's disk magazine 10 has hit the streets. It's now under a new name, *Suite 64*. (See the advertisement on page 31.) On the disk you'll find the usual collection of goodies to play with, including more demo's on the flip side. However, we are most excited about our new menu system called ADOS.

ADOS stands for Andrew's DOS or Amiga DOS or A DOS or whatever you care. It is a point and click disk front end program. When you boot ADOS up, in the usual fashion of LOAD "0:*";8,1, a disk icon is displayed in the top left of the screen.

Plug your joystick into port II, and you'll be able to move the pointer around the screen. Move to the disk icon, and hold down the button until a window opens. Like it?

Now you'll see six drawers or departments on the disk. Move to the drawer that grabs your interest, and click once on the button. A second window will open with icons for the various programs or articles in that drawer. To run or view one of these, just point and click. To close a particular drawer, click back on the disk icon.

I suggest you go straight to the editorial or readme drawer, and read the ADOS.info icon. That will provide you with the latest information on ADOS each issue of the disk magazine from now on.

The best part about ADOS is that most programs can now return directly to

by Andrew Farrell

the menu. They don't have to re-LOAD the menu program. In most instances, it's in memory ready to run. ADOS is so small, it doesn't take long to LOAD. The icon files are only small too, so on the whole the entire package works fairly quickly, especially with a fast-loader!

What's more, you can even swap disks once ADOS is booted, insert another ADOS disk, click back on the disk icon, reopen it, and you're away.

In the future an ADOS install disk will be available so you can put ADOS on all your favourite disks. Design your own icons, and maybe we could see who has come up with the best! Icons are easy to draw, and you can have a lot of fun coming up with designs for each of your programs.

Technical details

ADOS sits from \$C000 to \$C5FF, part of a 4K block of RAM above the BASIC ROM and uses variable space from \$CF00 to \$CFFF. This will eventually form the basis for a preferences program, whereby you can design your own pointer, and set the screen colours, icon colours, pointer colour and so on. The entire package is written in full machine code, and uses sprites to display each of the disk icons. It's simple, but flexible, and we hope to take the idea a lot further.

Unlike GEOS, ADOS is fast. No waiting around for icons or windows to appear and open. And disk swapping is a cinch. More on those topics next month.

What else is on the disk?

Let's take a guided tour, drawer by drawer, and see what's on the disk. As usual, we keep putting programs on, un-

til there's no space left. This issue we've included lots of editorial, and in the future we plan on adding more. The READER program currently boots up from ADOS. It then loads screens one at a time for you to read.

Just like a real magazine you can go back or forward one page at a time. We already have a version of ADOS 1.5 working that has the reader built in, and is even faster. See issue 11, out next month for details.

Work

Under the work icon you'll find three programs, and one readme file. Two of the programs are *Appointment Manager*. One version is compiled, for speed, the other is straight BASIC as published in the paper magazine, for you to modify.

The third program is *Depreciation*. Straight line, sum of the digits, and double declining depreciation are all catered for. Full instructions are included in the program.

Tools

Define function keys provide C128 function keys for your C64. One of the best features is the ease with which they can be modified directly, on screen. For space enthusiasts, there's a disk program compactor. It's very straightforward to operate, and compacts most programs to an easy to handle size that won't over crowd your disk collection.

Games

A few issues back we managed to quite innocently publish a copyrighted game from Gremlin - the problem was that someone had removed the copyright message, and we thought it was public domain! No more mistakes like that please.

This issue we have three top games, for strategy and arcade players. *Cup Challenge* was commercially released some time back. We've included this one, because it was written by yours truly, especially for sailing enthusiasts. It involves some strategy, and a fair helping of dexterity, to guide your boat around the course and over the finish line without running aground. Two players only, two joysticks are required.

Star Gunner was submitted by one of our devout readers. It's a simple shoot'em up type game that uses some interesting techniques in animation to simulate a perspective view approach of incoming ships. More contributions like this are more than welcome. Contact our editorial offices on (02) 817 0011 for information.

Last up is *Hamlet*, or *Othello* as it is better known. This program is an original public domain special which has been

modified to include colour. A fun game for one player, easy to play but hard to master.

Education

One program, especially for high school students. *Chemistry* drills the correct symbols for the 104 known elements. The student may enter a range from the periodic table to practise.

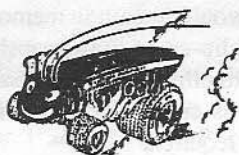
Graphics and music

Flip the disk to side two for the real stuff. ADOS is not on that side, so just load and run the program you want to check out. However on side one there are a few music and graphics worth checking out. *Music 64* allows you to enter music on a stave and load and save your compositions. Two example pieces are included to try out. Instructions are built-in to the program itself.

There's also a simple program to print out a stave, on which you can then write your own music by hand. For the graphically minded, there's a short slideshow of some interesting pictures that crossed our office in the past few weeks. We're on the look out for more pictures. If you wish to contribute, those published will receive a free copy of your next two issues.

Conclusion

That's about it. The sum of its parts are greater than its whole, as they say. Every disk magazine has something for someone. At the price we sell it, you can hardly complain. Don't forget, each disk is double sided. The next issue will be out in July, so watch for it. If you have any suggestions, complaints, or contributions contact *Suite 64* direct on (02) 817 0011. ■



The disk software for the **GRAPHICS UTILITY** is now complete. It was a long time coming, but we think you will agree it was worth the wait.

Cockroach Graphics Utility

New features include:-

FULLY MENU DRIVEN.

PAL/NTSC COMPATIBILITY - the Roach Shows will now fastload here and in the USA.

PRINTER DRIVERS now include automatic **SERIAL/PARALLEL** options. (May be used with **USER PORT** cable).

PRINTSHOP EDITOR now handles 2 and 3 block graphics.

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FILE CONVERTER for changing your picture files to many of the popular drawing programs currently available. (Including **GEOS**). This means you can now use your favourite drawing program to enhance the pictures captured with the **GRAPHICS UTILITY CARTRIDGE**.

NEW COMPREHENSIVE INSTRUCTION MANUAL.

And much more . . .

Note for GRAPHICS UTILITY OWNERS

If you are currently registered with **COCKROACH SOFTWARE**, you will receive your free update automatically within the next few weeks.

Due to unforeseen circumstances, registration cards which were returned to **MICRO ACCESSORIES S.A.** have mysteriously disappeared into a black hole . . . together with our royalties! However, you may still receive an update package by writing directly to us enclosing \$9.95 plus \$2.00 postage and handling.

This will also validate your warranty and you will be included on our mailing list.

(Micro Accessories S.A. is now under new management who are in no way responsible for the above mentioned situation.)

COCKROACH SOFTWARE P.O. BOX 1154 SOUTHPORT 4215. TEL (075) 324 028

Cockroach Graphics Utility

version II

by Andrew Farrell

COMMODORE 64 owners still enjoy some of the best value for money graphics around. Now you can not only capture them with the Graphics Utility, but also easily edit, combine and print the results - thanks to the release of version II.

Version two of the *Graphics Utility*, formerly the *Graphics Pirate*, is now available. Some big improvements have been made in the cosmetics department, however there are also some new beautiful features to play with.

If you currently toy with any of the many print packages around such as *Printmaster*, *Printshop* or *Newsroom* - this cartridge and software is a must. Transferring graphics or clipart as it sometimes called, between formats is a sinch.

What is it?

The *Graphics Utility* is a cartridge and utility disk, along with some thirty pages of documentation. The package enables you to snapshot a screen, which is then saved to a data disk. It can then be recalled, edited, added to, changed to a different format (the way in which the picture is saved), or save as part of a slideshow.

Pictures are captured at the press of a button on the Utility cartridge itself. After being prompted for a file name, and to insert the correct disk, the picture - including sprites are saved.

How does it work?

Each picture is saved to the disk in the appropriate format. Then using the utility disk it may be save in a standard format called a CCG file. It takes up less space on your disk than a normal picture, and is therefore faster to LOAD. The standard format also acts as a stepping stone toward changing the picture file

into a different picture format.

Many users also especially enjoy the ability to print the captured pictures - including sprites.

What are the improvements?

If you already have a Cockroach *Graphics Pirate*, you can upgrade to the new utility software just released. Users registered with Cockroach software can enjoy this service free, otherwise an update fee of \$9.95 will apply. The entire package with cartridge is \$69.95.

So, what's new? Lots! If the documentation is anything to go by, the utility software has been well and truly souped up. For a start, there's a parallel printer driver that works with most popular brands. All you need is the necessary cable - which is exactly the same as the *Geos* cable. Cockroach will be making a similar one available for under \$30 real soon now. The program automatically detects if you have a parallel or serial printer connected and adjusts accordingly.

The first obvious improvement is the menu system which links each of the various programs involved - the package is actually a suite of smaller programs that do special jobs. Each of the different

"If you currently toy with any of the many print packages around such as *Printmaster*, *Printshop* or *Newsroom* - this cartridge and software is a must."

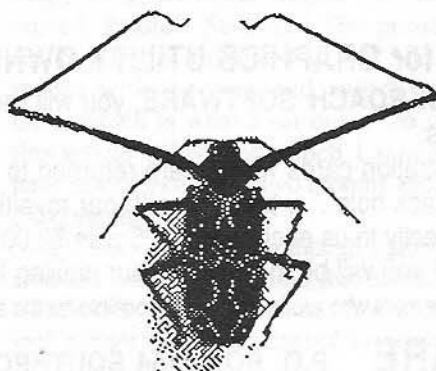
programs may be selected and loaded using the joystick.

Once you LOAD a picture or graphic, if you move to a different editor, the data remains in memory for you to continue editing. For example, if you loaded a Hi-Res picture (such as *Doodle*), and then moved to the printshop editor, the *Doodle* picture would remain in memory so you can add clip-art to it, or snapshot part of it to make clip-art. You can save the clip-art file as either a two or three block graphic as required.

Being able to move from program to program without losing your current picture has a few interesting side effects. Firstly, because the edit area is not cleared when you first run the program, it may contain garbage - however if you've just exited from *Geos*, it will contain the last picture screen you were viewing.

Editor by editor . . .

The utility in no way replaces any of the powerful drawing packages around. Rather, it adds to or compliments whatever software you have, by enabling them to work together. The Display Editor provides simple editing facilities for virtually all the C64's display modes. These include text screens, text screens using a redefined character set, hi-res graphics, multi-colour graphics and sprites. Extended background colour mode is not supported.



Problems can be encountered where the captured screen used a raster interrupt to split between two different graphics modes. In this instance you will have to try and capture each mode by trial and error and then combine them again later.

Having loaded a koala or doodle file, you can save the picture as a CCG file (to print it or make into a slide-show). Depending on the picture format, the border, background or multi-colour registers may also be changed, giving pictures a whole new slant. You can also pick up a character block on the screen - that's an 8 x 8 block of pixels - and use it as a brush. In this manner it's possible to carry out quick and dirty modifications to your favourite game screen shots.

Sprite colours are modifiable, as are their size, and position.

Printshop users will enjoy the layout editor. *Printshop* and *Printmaster* graphics can be loaded and distributed around the screen to create a collage, cartoon, or picture. You can use a straight hi-res screen, with no colour, as a backdrop to build onto. Loading a different format will cause the colour to be automatically stripped.

If you're into *Newsroom*, you may be wishing there was faster that does the same thing - word has it from the USA that such a replacement is on the way. However, in the meantime, you can do a lot of interesting things with the *Newsroom* editor - which is umpteen times faster than booting up the program itself.

Working much the same as the *Printshop* editor, background pictures are allowed in monochrome, and graphics imported may be overlaid.

In all three editors there's a fairly standard set of keys that carry out special functions. If the key you select won't work in the mode you happen to be in, a buzzing noise is heard. Some of the functions include:- reverse screen (or make negative), flip left/right, toggle between hi-res and multi-colour, and clear. Sprites and clip-art may also be played with using much the same functions.

It's surprising the way in which

sprites are used in some games - occasionally several are overlaid to produce a multi-colour image with smooth sides.

Picture can be saved in a variety of formats, with a double keystroke command, either bitmapped (*printshop* screen magic type files), CCG, doodle or koala pad. A file convertor utility accessible from the main menu allows other file formats to be saved to also.

Other functions

From the main menu there are a few other very useful programs. In order, they are Fast Format, Roach Show Maker, File Converter and Print Routines.

Fast Format provides a verified disk format in just under 20 seconds - fully prompted - and you can abort at the last moment. The Roach Show Maker saves the relevant files onto a slide show disk. Just place whatever CCG files you want included, and you have your own show ready to roll.

The File Converter is probably the most practical tool you could ever hope to have in your box of graphic tricks. You can load any supported graphics format, swap between hi-res, and multi-colour and then save the file as any of the following :- *Koala*, *Blazing Paddles*, *Artist 64*, *Image System*, *Microillustrator*, *Super Sketch* or *Animation Station*. More formats may be added in the near future.

Last, but by far not the least, is the print option. This is where all your hard work hits the page for all to admire. You can also modify the printer driver used - currently you can choose from:- Epson, Gemini 10X, MPS 801/3, Oki-20 Colour, or BMC-80. Linefeeds and line spacing can also be set - essential to stop that annoying white gap, or slight overlap commonly seen on many other graphic program printouts.

Menus and file requesters

All the utilities use the same file requester and menu system. The directory

"Being able to move from program to program without losing your current picture has a few interesting side effects."

is scrolled through, and once you reach the top or bottom, you may choose to insert a new disk, or return to the main menu. The main menu of each editor enables you to quit to basic, or return to the opening menu.

You are always prompted to insert the correct disk - and a mistake will not crash the program. The *Graphics Utility* will also work with a dual drive system very well. You never get stuck into an option - RUN/STOP and RESTORE will bring you back to the previous menu.

The overall design is very slick, clean and easy to operate. The programs follow a logical flow that quickly becomes a matter of habit. This is version two's greatest improvement over earlier releases.

Conclusions

A very worthwhile choice for the graphics enthusiast. The utility software is a solid package, that works reliably and consistently. A great stepping stone for those trying to break into the world of graphics. Also essential for owners of several different drawing programs they often use. Publishing people will find the *Graphics Utility* is an invaluable tool to building their clip-art resources.

In all, a fun program with great practical value. Good value for money - the sort of program you'll drag out again and again, only to find new ways of using it. Available from some computer dealers, however enquiries are best directed direct to Cockroach Software on (075) 32 4028 - and don't be afraid to use the answering machine!

The Sega Master System

It's not often we look at alternatives to our favourite computer, the C64. But, for once, we were tempted to check out something that could at least keep the kids at bay, whilst you get down to business.

SEGA WAS A VERY all right sort of computer. However, they now have a game console that is far from just all right - more like awesome - well, in some departments at least. First things first.

What's under the hood?

Not surprisingly, not much. In all there are only ten chips on board. The entire printed circuit is only slightly smaller than the C64's own board. A few custom Sega chips, and a fair amount of shielding. At the front of the unit are two joyports, and a push type power switch. There's also a slot for card type games.

On top of the case are two very useful buttons, Pause and Reset. When the phone rings, there's no need to finish your last man, suicide, or just leave and hope for the best. Now, you can freeze the action perfectly - which is also useful for spying out tricky situations a bit better.

Toward the rear of the top casing is a large hinged slot for cartridge games, the



Sega's forte. One cartridge may contain up to four megabytes of game scenery, data and program. Sounds great. But how does it play? We took a look at a few of the better sounding offerings. Overall they were pretty good.

The unit itself is very robust. Each cartridge has a rigid feel, and fits snugly into the appropriate slot. My main complaint are the controllers, which SEGA have the audacity to call joysticks. They're plain junk. They boast two buttons, and a little clip in handle about the size of a tall match stick. Awkward plus!

Real joysticks will fit the standard type connections, but you need two separate fire buttons, as most games use each one differently. A wiring problem more than anything. After a few hours of game play, we kind of got used to those little contraptions, and few complaints were heard - but I still prefer my

steel construction, rock solid Wico.

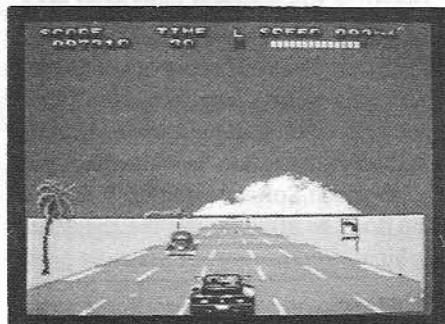
In summary, the machine appears to be good value for money. All the instructions are easy to follow, and the unit connects quickly to the family TV, with ALL the necessary parts, including a switch box, being included. Impressive. Available from leading department stores for around \$199. Now to the games!

Out Run

A natural choice. Sega wrote the arcade original, and to date, this is about the best take off of it we've seen in the graphics department. And that is the strength of this games machine. Pretty pictures! The sound department is shocking and the music is, well, it's good.

In action, *Out Run* performed well. The game is exciting to play, and the scrolling is brilliant. The car does a full flip or spin depending on what you hit. I couldn't get used to not having the sound of the Ferrari revving out. It's necessary to keep a watchful eye on the tachometer - a bar graph at the top left of the screen.

This is a clumsy answer to what is obviously a badly designed sound chip, worse than the Vic 20. Gear changing is



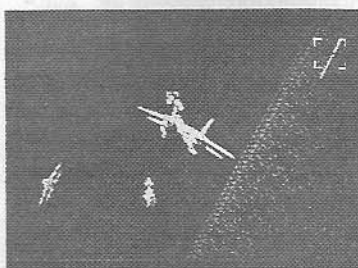
incredibly difficult using the included controllers, but you can manage out of necessity. I found myself bumping it back a gear all the time without meaning to.

During the bridge sequence, if that's what you call it, where you travel under those stone bridge things, the hill function ceases.

Now even the C64 version allows that! A bit disappointing.

The car handles well, once you get used to the controller, but the difficulty threshold seemed too low, and before long we found the game a bit on the easy side. A good game is easy to pick up, but difficult to master.

After Burner



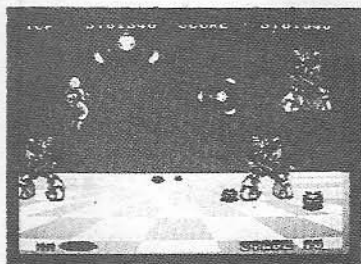
Another Sega arcade super hit. Until you've sat in the chair of *After Burner*, you haven't come close to the thrill of flying a jet plane. As for the missiles and bullets bit, well, that's another issue.

In the arcade, the game features an after burner button. An exhilarating thrust of power, whisking you out of trouble spots. In the home version, you're playing *After Burner*, without the After Burner. It's just fly, dodge, and shoot. All four megabytes of it!

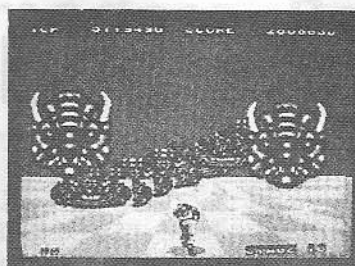
Graphics are number one. The best choice by far.

Sound is once again poor. The aircraft handles well, and is fully capable of spins and dives. Dock with the mother craft, land your ship and play on. Plenty of challenge for avid arcade players. *After Burner* suffers less from the controller limitations than *Out Run*. I'm not mad on the theme, but objectively it's a well written game.

Space Harrier



Far from the sure footed Ferrari or the radical F-15 Tomcat, you are Space Harrier and man and his flying gun??. This game is another of Sega's arcade conversions to their game machine with two megabytes of scenery and gameplay to dazzle you.



The aim of the game is to clear all 18 levels of "The land of the Dragons" after which peace will reign.

Each levels consists of a number of waves of various creatures leading up to a master creature, which is one of many things such as dragons and other various nasties. These master creatures take quite a beating, and in fact it requires many direct hits to kill one of them.

The fifth and and twelfth frame are bonus stages. There you can ride on the back of a dragon named, for unknown reasons, Euria - yeh hah! During that time, you are indestructable and everything on land can be destroyed just by touching it. We never made it this far to see this massive destruction take place.

This game is a good conversion of the original. There are slight flicker problems, but I am sure that you will be happy with it if you liked the original.

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Cartridges and the C64 by Denis Hare

CARTRIDGES ARE convenient and easy to use. Programs on cartridges load instantly. You can program your own cartridges if you have available a suitable cartridge Printed Circuit Board (PCB), an Erasable Programmable Read-Only Memory (EPROM) burner and some EPROM integrated circuits (chips).

EPROM programming equipment is expensive and not normally available to all. An alternative is to use Complementary Metal Oxide Semiconductor (CMOS) Random-Access Memory (RAM) chips with a special cartridge PCB, that contains a battery to retain memory.

The advantage of RAM cartridges is that no special equipment is required to program them. The program that accompanies this article places BASIC programs in RAM cartridges that auto start.

Some cartridge fundamentals

Information on the C64 memory configuration can be found on pages 260-267 of the *Programmers' Reference Guide*. In brief the C64 supports eight different memory configurations of which four are for use with cartridges, normally using Read-Only Memory (ROM) or EPROM chips. The status of the GAME and EXROM lines (lines 8 and 9, respectively) of the expansion port determines the particular memory configuration the C64 assumes on power up when a cartridge is fitted.

Both are active low, that is, when grounded (0 volts). With no cartridge plugged in these lines are automatically held high (+5 volts). It's up to the cartridge to ground these lines according to the memory configuration it wants.

If the EXROM alone is grounded,

this indicates an 8K cartridge replacing RAM at \$8000-\$9FFF. If both EXROM and GAME are grounded, it indicates a 16K cartridge that replaces RAM at \$8000-\$9FFF and the BASIC ROM and RAM at \$A000-\$BFFF. Finally, if just the GAME is grounded, this indicates a ULTIMAX (MAX) cartridge is present. MAX was a video game system produced by Commodore. Because access to most of the C64 RAM is not available, MAX cartridges really aren't usable in many applications with the C64.

With the 8K and 16K cartridges, replacement of memory is only true for read operations. Write operations will vary in their effect depending on the type of cartridge. For example, with an 8K cartridge, the computer will be able to read the cartridge ROM/EPROM at \$8000. If the computer tries to write to this location, however, the data will end up in RAM "under" the cartridge. Likewise, with the 16K cartridges write operations go to RAM automatically, even though the ROM/EPROM at \$A000-\$BFFF is two levels removed from RAM.

On power up with the cartridge fitted, the EXROM and GAME line information is passed to the Programmed Logic Array (PLA) chip which configures the memory using "chip select" lines. Chip select lines for cartridges in the expansion

port are ROML and ROMH (pin 11 and pin B, respectively). One of the housekeeping routines executed by the KERNAL ROM checks for a unique sequence of bytes at location \$8000-\$8008. See Table 1. If this sequence is present, the C64 stops its normal reset routines and program control is transferred to the cartridge. Commodore call this the "auto-start" feature.

Exotic cartridges

The cartridges we have examined so far by no means exhaust the possibilities. By manipulating the GAME, EXROM and other lines, many exotic cartridges can be created. The most common example of an exotic cartridge is a bank-switch cartridge. "Bank Switching" means turning memory chips on and off, so different chips can occupy the same addresses at different times.

A bank-switching cartridge looks like a standard 8K cartridge to the C64 but special circuitry on board the cartridge called the bank-select register (BSR), which turns chips ON and OFF as required, normally using the 1/01 or 1/02 lines of the expansion port (pin 7 and 10, respectively). 1/01 is set low whenever a read/write operation accesses the \$DE00-\$DEFF area and 1/02 the \$DF00-\$DFFF area. To switch the current

Table 1 - Autostart Recognition Code

Location	Definition
\$8000, \$8001	Low, High Byte of Cold Start Vector.
\$8002, \$8003	Low, High Byte of Warm Start Vector.
\$8004, \$8006	The ASCII sequence 'CBM', with bit 7=1.
\$8007, \$8008	The ASCII sequence '80'.

ROM/EPROM chip normally only requires a write (POKE) operation of a particular value to the BSR. Once the BSR is triggered, the memory information from the ROM/EPROM chip selected will appear at \$8000-\$9FFF immediately.

Making cartridges

The cartridge PCB's being double sided are not suitable for manufacture at home by the average person. Making cartridges in Australia is therefore not cheap because of the cost of the PCB's, cartridge cases and the equipment required for programming the EPROM's, which are all imported from the USA.

One USA cartridge manufacturer, the Jason-Ranheim Company, has his wares imported into Australia by Lion Electronics, 313 Great Eastern Highway, Midland, Perth, WA, 6056. Telephone

(09) 274 4519.

One board currently imported is the PRB4 EPROM/RAM Bank Switching Cartridge Board with Battery back-up. This board uses EPROM's (2764 or 27128) or 8K x 8 CMOS static RAM chips (uPD436C-L, HM6264LP or TC5564PL) or a combination. A long life lithium battery on the cartridge board retains RAM data when the power is off or the cartridge is unplugged.

Any 8K bank of EPROM/RAM can be switched by the computer into its \$8000-\$9FFF address space by storing the appropriate number into the BSR. In addition the cartridge can be disabled completely and the 8K of computer RAM switched into the area instead, to return the computer to normal operations.

With a PRB4 cartridge fitted with RAM chips you can store four of your

favourite BASIC programs in the PRB4, all autostarting using the program in listing 1. SAVE the program to disk or tapes as "PRB4-RAMCART".

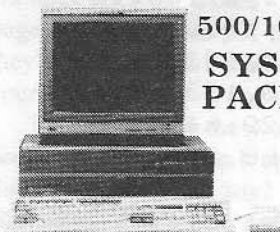
The PRB4 cartridge comes with directions for its use and is normally shipped with option 1 (computer power only) for the chip sockets 0 and 1; and option 2 (computer power with battery back-up) selected for sockets 2 and 3. Cut the EPROM link and bridge for RAM (computer power with battery back-up) for sockets 0 and 1 (see diagram supplied with the PRB4 Cartridge). You also at this stage should invert the enable/disable bit by cutting the link and bridging (see diagram supplied with the PRB4 cartridge). This will ensure that when the computer is fitted with the PRB4 cartridge, it will function normally, until the cartridge is enabled.

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Programming the PRB4 RAM cartridge

Fit the PRB4 RAM cartridge to the C64 and turn it on. The computer start-up message should detail "38911 BASIC BYTES FREE" which indicates the cartridge is disabled and the computer is using its RAM at \$8000-\$9FFF (normal operation). If start-up details only "30719 BASIC BYTES FREE" then the cartridge enable/disable was not reversed correctly. Table 2 gives the instructions for bank switching into each socket/chip (8K RAM).

Select RAM Socket/Chip that will be used to store the BASIC program by using the instruction from Table 2.

LOAD the "PRB4-RAMCART" program with '8' (Tape use '1'). RUN which will place the code at the start of the 8K RAM chip selected. NEW memory and LOAD the BASIC program for storage. Do not RUN it. Type SYS 32898.

The machine code stored by PRB4-RAMCART will copy the BASIC program into the cartridge RAM selected. If the program is too big, over 31 disk blocks, you'll get an error message "PROGRAM TOO LARGE" instead. When the "READY" prompt appears, the RAM chip is programmed. To program the other three RAM chips repeat the sequence starting with socket/chip selection. When your programs are in the PRB4 RAM cartridge, just use the socket/chip select instructions in Table 2 and your programs will autostart after the RESET (SYS64738).

The PRB4 RAM cartridge you should find very handy, giving built in programs like the Commodore Plus/4. The difference is of course is that you can change your programs whenever you like without the requirement for expensive EPROM programming equipment.

**Table 2 - PRB4 RAM Cartridge
bank switching Instructions**
(inverted enable/disable bit)

Socket/Chip	Instruction (Direct Mode)
0	POKE57111,33:SYS64738 (First RAM Chip at \$8000-\$9FFF)
1	POKE57111,37:SYS64738 (Second RAM Chip at \$8000-\$9FFF)
2	POKE57111,41:SYS64738 (Third RAM Chip at \$8000-\$9FFF)
3	POKE57111,45:SYS64738 (Fourth RAM Chip at \$8000-\$9FFF)
Cartridge disabled	POKE57111,0:SYS64738 (Computer RAM at \$8000-\$9FFF, Normal Operations)
Cartridge enabled	POKE57111,32:SYS64738 (No computer or cartridge RAM, at \$8000-\$9FFF)

prb4 ram cartridge programming program

```

100 rem *****
110 rem ** prb4 ram cartridge *****
120 rem ** programming program *****
130 rem ** by denis hare 1988 (c) *****
140 rem *****
150 rem save "prb4-ramcart" tape/disk *
160 rem *****
170 for j=32768 to 33015:read x:pokej,x
:ch=ch+x:next
180 if ch<>30167 then print"** checksum
error! **":stop
190 print"** program in ram **":end
1000 data 9,128,94,254,195,194,205,56
1010 data 48,162,5,142,22,208,32,163
1020 data 253,32,80,253,32,21,253,32
1030 data 91,255,88,32,83,228,32,191
1040 data 227,162,251,154,172,240,128,174
1050 data 241,128,132,43,134,44,172,244
1060 data 128,174,245,128,132,95,134,96
1070 data 172,242,128,174,243,128,132,88
1080 data 134,89,136,192,255,208,1,202
1090 data 132,45,134,46,169,160,133,91
1100 data 169,0,133,90,32,191,163,169
1110 data 82,141,119,2,169,85,141,120
1120 data 2,169,78,141,121,2,169,13
1130 data 141,122,2,169,4,133,198,169
1140 data 128,133,56,169,0,133,55,169
1150 data 128,133,52,169,0,133,51,108
1160 data 2,3,56,165,46,229,44,170
1170 data 165,45,229,43,168,224,31,176
1180 data 67,140,244,128,142,245,128,56
1190 data 169,159,237,245,128,141,245,128
1200 data 169,255,237,244,128,141,244,128
1210 data 165,43,141,240,128,133,95,165
1220 data 44,141,241,128,133,96,164,45
1230 data 166,46,200,208,1,232,140,242
1240 data 128,132,90,142,243,128,134,91
1250 data 169,160,133,89,169,0,133,88
1260 data 32,191,163,96,169,220,160,128
1270 data 32,30,171,96,80,82,79,71
1280 data 82,65,77,32,84,79,79,32
1290 data 76,65,82,71,69,10,13,0
1300 data 0,0,0,0,0,0,0,0

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Off-Road Racing



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Epyx have one of the strongest ranges of games available for the C64. They also have the reputation for producing some pretty hot titles. However 4x4 racing may have been just a little too tricky.

After selecting your terrain, and difficulty level, play begins from the showroom floor. Here you must select the vehicle best suited to your course, and your tastes. There's a couple of American specials, a British military styles jeep with plenty of grunt, and a Japanese fun machine. Each have special attributes worth considering carefully.

Next it's off to 4x4 alley, where every shop sells the gear you need to fit your truck out for the journey ahead. Tyres, tools, spare parts, extras such as winches and even a female mechanic are among

the options to choose from. Two shops provide all you need. You control your 4x4 man, walking him to the shop of choice, and pressing the fire button. Inside, in true Epyx style, you just point and click at what you want.

This is the outfitting stage, Where careful strategy comes into play, or if you're like us, you just grab all you can carry and hope for the best. Weight is an important consideration in four wheel driving. A heavier vehicle takes a bigger beating, but burns more fuel. The more time you have to stop, the more precious time you lose, especially if you have to carry out major repairs.

Once you're fitted, the race is on. Sitting in your customised rig, complete with speedo, tacho, and a display showing the condition of various engine parts, you're set to go. A little man waves the yellow flag and off you head into the wild yellow wonder beyond.

Game play

To accelerate, you hold down the fire

button. Left or right steers your vehicle. To stop, you can either slam on the brakes by pressing forward, or gradually decelerate by pulling back.

The track is marked by dotted looking lines, and along the way various obstacles are scattered. These include huge boulders, presumably arriving there by the same method as Ayers rock, small logs, small stones, water puddles, bones and a few other odds and ends.

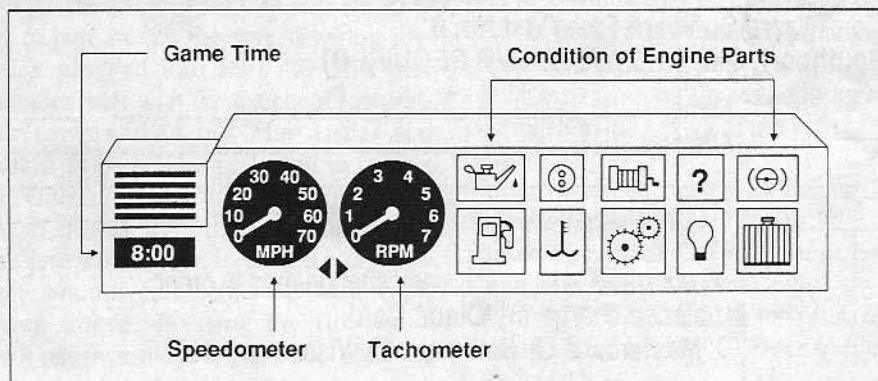
Some of these cause much damage, although without any immediate gauge of what was inflicted, and without any mention of what does which in the manual, it seems very hard to tell what to avoid. This is especially since the manual also says that some obstacles can be used, as we tried, to make you airborne and overcome other obstacles. Very strange. . . it kind of, sort of, works that way.

However, it appears that if you use the objects too much, you quickly crash. Three totalled rigs and you're out of the game.

Repairs

Your damage screen keeps track of needed repairs, which if bad enough must be made straight away. Otherwise, you can carry out minor fixes at the next checkpoint. When carrying out a repair, a point and click system is employed to select the part to fix.

Once selected, the screen displays what is required to carry out the job, and what you have. If there's a difference, you can simply use the sledgehammer option, which does a botch job, and decreases your endurance level - but it gets you by.



The dashboard



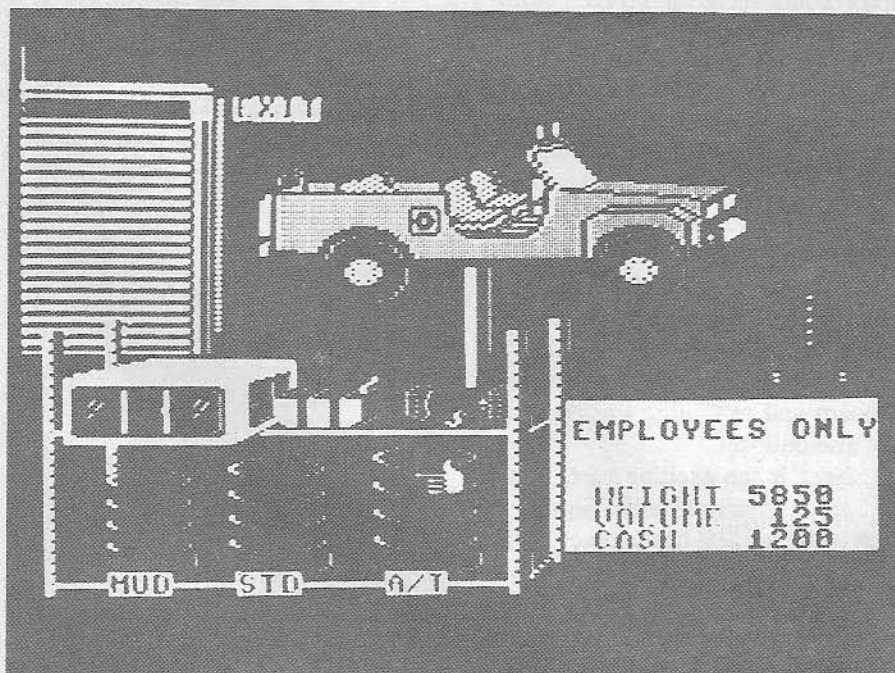
Some of the rougher terrain can be quite hazardous. That's where the winch comes into play. However the biggest problem is the dreaded Doombuggy. Your contenders are all impolite to a degree, but this guy is just plain rude. He'll run you off the road at any cost!

Conclusions

Although 4x4 enjoys some very smart selection screens, and a fairly good

overall presentation, the game falls short in the game-play area. It's just not exciting enough. The challenge of rounding thousands of sweeping bends, all dotted with the same rocks, tyres, and stones, becomes somewhat tedious.

Not enough variation, and rather dodgy graphics on the actual track, make 4x4 a bit of an iffy choice. Real 4x4 enthusiasts may enjoy having



something up their street, but for most people, this game just doesn't crack the pace. You can't turn a four wheel drive game into a racing car game with obstacles, and that's what Epyx has tried to do. Sorry guys, this time you didn't come through with the goods.

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Freeze Machine blues

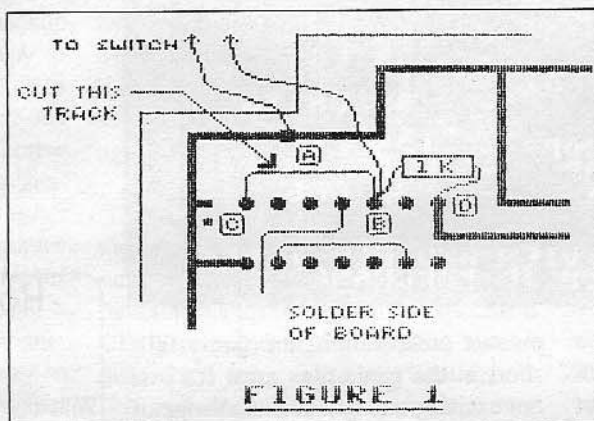
Are you tired of your Freeze Machine blues, reds, reds, etc...? This simple (and cheap) modification to your Freeze Machine will enable it to boot up permanently in either the Red (Lazer mode) or Blue (Fast mode) screen, without the frustration of pressing the Reset button again, and again, and again...!!

WHEN I HEARD that the Freeze Machine had hit the local Commodore dealers' shelves, I rushed out and purchased and long-awaited piece of hardware. (I won't go into the "fors" and "againsts" of the cartridge, as this has been covered in a review in a previous issue of this magazine.)

When I arrived home, I eagerly inserted it and gave it a good work-out. As most owners will realise, the Red (Lazer) mode is (very) fast, but after a few "sessions" of using it, I find that the Blue (Fast) mode is the one that is most often used. (For the un-initiated, Lazer files cannot be copied by any other file copier than that built into the Freeze Machine.)

Also, the idea of pushing the Reset button on the cartridge to toggle between Red and Blue modes seemed alright at first, but after a while this became tedious, as, being a Blue mode user, I have to push it twice, thrice, or even more times to get it to toggle to the Blue screen. (The thing seems to default to the Red mode, and more often than not, the toggling action does not work).

Finally, my warranty ran out, so I decided to do a bit of investigating, the result of which is a small toggle switch which enables me to select a permanent Red mode or Blue mode. The following is a description of the modification, which requires only a few dollars worth of bits, and about half an hour of your time. I won't go into the technical details of how the mod works, as this would bore most people.



The modification

The parts you need are a miniature SPST toggle switch, a small wattage 1K resistor, and some multicore small gauge wire (that's all), available from all electronic spare parts retailers. A small tipped, low-wattage soldering iron should be used to perform the mod. If you feel confident so far, proceed as follows:

1. Remove the back panel (1 screw), and undo the nuts holding the Freeze and Reset buttons to the case, and remove the switches.
2. Drill a hole in the case next to the Reset button to accept the toggle switch.
3. You will find that you will have to file the back of the switch down to about 8mm high so it will fit under the circuit board. (I preferred this to cutting the board and re-routing tracks which could also be done).
4. Next is the exciting part, firstly familiarise yourself with Figure 1, which is the top left-hand corner of the solder-side of the board. Then, with a sharp pointed blade, cut the track between point B and point C.

5. Solder the 1K resistor between point B and point D.

6. Solder 30mm lengths of small gauge multicore wires to points A and B (a pair from a piece of ribbon cable is ideal), the other ends of which can then be soldered to the switch (don't form solder blobs as this increases the height of the switch which is a problem as discussed above).

7. Place a piece of insulation tape on the component side of the board where the back of the switch will sit, to prevent shorts.

8. Install the switches, and reassemble the cartridge (you may find you have to file more off the back of the switch). Make sure the insulation tape fully covers the back of the switch.

The finished product

Congratulations! You now have a Freeze Machine that's a dream to use. In one position the screen remains in Red mode, and in the other, Blue mode. I even went to the extent of removing the old cartridge label (which was wearing off anyway), and printing out on a sticky label a new one (with Freeze, Red/Blue and Reset on it) to fit in the blank under the switches.

Note that once the switch is moved, it is still necessary to press the Reset button to toggle between mode, but at least it will stay in that mode until you want it to change.


This mod has worked flawlessly for me now for more than six months, and also saves wear and tear on the Reset button. So, to all you Freeze Machiners... Good luck. ■

Australian **Amiga Review**

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N O T E P A D

End of year release for Amiga 2500s?

Commodore Chairman and CEO Irving Gould announced at the West German Hanover Computer Faire that Commodore would release two Model 2500 versions of the Amiga computer. Both versions will use the A2620 processor board, which includes a 68020 processor and the 68881 math coprocessor, with an MMU and onboard 32-bit RAM.

The A2500AT Amiga will include the A2286 "Bridgeboard" PC/AT single board clone, and a 40 megabyte autoboot hard drive as standard features. Advance pricing estimates for each board is about \$2,000 (US) for the 68020 board configured with 2 megabytes of 32-bit RAM, and \$1,000 (US) for the A2286 Bridgeboard, which will have at least 512K of RAM.

The base price of the Amiga 2000 model, which is the chassis for the 2500AT, and which contains 1 megabyte of 16-bit RAM and a 68000 processor, is \$2,000 (US). Adding about \$1,000 for a hard-drive and controller, total cost of the components for the system will be \$6,000.

Commodore is likely to make some reduction in price for the bundled system, as opposed to the price of the separate components, so an actual price near the \$5,000 (US) mark is possible.

By comparison, a Macintosh II system with expanded video board, 20-megabyte hard drive, and Macintosh color monitor is list priced at about \$6,400 (US), and a PC-compatibility card will add to that cost.

The A2500UX Amiga model

will sport the 68020/68881 board with 4 megabytes of memory, and an autoboot hard-drive of up to 100 megabytes capacity, with an option for streaming tape backup. The operating system will be UNIX 5.3-compatible, thus the "UX" in the model designation. The multitasking, multiuser operating system will include a windowed user shell.

Gould also confirmed that Commodore is working on the Amiga 3000 which will use the Motorola 68030 CPU and include built-in networking capabilities and the capability to use virtual memory addressing with mass-storage devices of up to 2.2 gigabytes capacity.

Gould further announced that Commodore is working with a German research institute, Gesellschaft für Biotechnologische Forschung (the Society for Biotechnological Research) to develop Transputer boards for the Amiga 2000.

Transputers are simple but powerful CPUs designed specifically to work in parallel, distributed processing applications, such as complex interaction simulations like those to simulate air movement around aircraft wings.

Based on information given to Commodore dealers recently, the Amiga 2500 models could be available as early as July in the USA, with supplies making their way to Australia by the end of this year. Gould said the Amiga 3000 would not be available until 1989.

The 2500 models might also include the Very Fat Agnes custom chip, which would allow the specialized Amiga co-processor chips to

directly address one full megabyte of RAM for graphics and audio, as opposed to the current half-megabyte address limit for these chips. By comparison, the Mac II has 256K RAM capacity on its optional color graphics board.

Another possible component change for the 2500 would be an upgraded Denise (video) chip, which would allow 640 x 400 resolution in non-interlaced output. While Very Fat Agnes is currently completing Beta test, no news regarding the test status of an upgrade to the Denise chip has been forthcoming from Commodore.

Another profitable quarter

A recent rumor, thankfully short-lived, indicated that Commodore had posted millions in losses in the third quarter of its current fiscal year. After nearly \$34 million in profits during the first two quarters, this was difficult to believe and, in fact, was untrue. Commodore had again posted several millions in profits.

According to Commodore Chairman Irving Gould, the Amiga is now accounting for 40 percent of the company's total revenues of 281.7 million for the quarter ending December 31, 1987. The remainder of the revenue represents Commodore's continuing strong sales for the C64 and C128, and growing market share in IBM PC XT and AT compatibles.

Return of the Amigans

Still another rumor: many members of the original Amiga

design team, let go by Commodore in a cost-cutting series of layoffs in 1986 and 1987, have been rehired and are working on AmigaDOS 1.4.

If true, this means that not only is the third upgrade to the Amiga Operating System nearing release, but the fourth is already in the works.

Commodore, which rarely fixed OS bugs and never upgraded OSes for its VIC/64/128 computers and peripherals, seems to have turned over a new leaf with the Amiga.

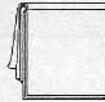
Amiga portables?

An industry insider recently claimed at least one company is considering an OEM contract to use Amiga boards in the production of a laptop or portable version of the Amiga.

Commodore has been active in OEM marketing of the Amiga boards, mostly with Bally and other Arcade Game machine manufacturers, so we hope they give these folks a welcome reception.

The company is looking at LCD color display technology, as well as other varieties of "thin" visual display technologies. Color is currently expensive and difficult in thin display formats, so I'd bet that color will end up being an extra-cost option, if available at all.

The Commodore-specialized magazine INFO reports that Dynamac, which produces a Macintosh portable, is negotiating with Commodore for rights to produce an Amiga portable. Dynamac will not comment on the rumor. Indications are that there is interest in producing portable versions of the Amiga from at least these two companies,



and possibly others, so a portable Amiga is likely.

We can only hope!

Amiga and the business world

Other major software producers may be preparing to follow Wordperfect Corp.'s lead into the Amiga market. Representatives from Ashton-Tate, producers of the DBase programs, were at the AmiExpo in Los Angeles in January. While they would not comment on their reasons for attending,

it seems likely that Ashton-Tate is sizing up the market potential of the Amiga.

Entry of such software giants as Ashton-Tate and Lotus into the Amiga software arena would further legitimize the Amiga for the business community, and perhaps galvanize penetration of the upscale Amiga models into the business market.

The Amiga software market already sports DBase and Lotus work-alikes, as well as programs which aren't work-alikes but can import data

from the grand-daddy spreadsheet and database programs. These and utility programs such as Central Coast Software's DOS-TO-DOS, which can read and write PC disk formats and convert files to and from Amiga and PC formats, have allowed some degree of integration of the Amiga into the PC world.

Further integration is achieved for the Amiga 2000 with the XT-compatible A2088 BridgeBoard, and the upcoming AT-compatible A2286 Bridgeboard. With Arcnet,

Ethernet, and various other networking boards now or soon to be available for the Amiga, the picture for full integration into the business environment looks rosy indeed.

All this means that, one way or another, anyone who wants the benefits of both the Amiga and the IBM PC can have it now, without Ashton-Tate or Lotus going to the trouble of translating their programs so the Amiga can use them directly. ■

New products and future releases

IntroCAD

IntroCAD is an "object-oriented" drawing program. The concept is entirely different to "pixel-oriented" drawing programs with which most of us are more familiar. The major difference is in the way information is stored.

Pixel-oriented programs (e.g., *GraphiCraft™*, *Deluxe-Paint™*) store essentially all of the information which describes the picture you are drawing right on the screen in front of you. Each little dot on the screen — each pixel — has a colour; your job, as drawer, is to change the colours of selected pixels.

For some purposes, the screen is not an ideal place to store picture information. A computer screen is a relatively low-resolution device when compared to most printers and plotters; you normally can't use the higher resolution of these output devices if the picture information is stored on the screen.

Some numbers: the highest resolution achievable on the Amiga is approximately 75 dots per inch (DPI) horizontally, by 60 DPI vertically (with the standard Amiga monitor).

In contrast, the best resolution of one medium-priced dot matrix printer is 240 by 216 DPI. Laser printers routinely achieve 300 by 300 DPI.

Object-oriented programs, on the other hand, store information in a drawing list which is kept in the computer's memory and use the screen only to exchange information with you. The screen is optimized for quick transmission of information to your monitor, while the drawing list is optimized for faithful recording of your drawing. Your job, in using an object-oriented program, is to "tell" the program where the lines which make up your drawing begin and end, what colour the lines are, whether they are solid or dashed, etc. You tell *IntroCAD* these things by drawing the objects, just as if you were using a pixel-oriented program. The program responds by showing you a picture of what you're drawing.

In *IntroCAD*, what actually is stored are the points of the objects you draw. A line segment, for example, is stored simply as two points — two pairs of coordinates.

A second difference be-

tween object-oriented and pixel-oriented drawing is the way they behave when you draw one object on top of another. In pixel-oriented drawing, the covered object is gone forever; all memory of it has been erased and replaced by the new object.

Most pixel-oriented programs provide a means of recovering the obscured object by "undoing" the drawing motion which erased it. In object-oriented drawing, nothing is ever erased by drawing on top of it; objects are remembered unless they are explicitly erased.

IntroCAD is available from Diskworks for RRP \$139.

For details contact them on (02) 436 2976. Full review coming soon. ■

ACME Software

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Ozi-Soft

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- Newtek Digi-FX — presentation package. First shipments just arrived. Reviewed soon.

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- California Access — \$359 slim-line, low power, long cable, Amiga colour, daisy chaining, external disk drive.
- Spirit In-Board 1.5 meg for A500 around \$1700 — depending on chip prices.
- Pro-Write II, new shipment expected soon priced at \$219.
- Kind-Words wordprocessor selling in big numbers. Reviewed soon.

Expansion Systems

(02)356-3445

- A500 low cost 2 Megabyte expansion board. Plugs into side of main unit, will cost under \$800. Release expected in 6-8 weeks.
- Compact 20 Meg hard drive aimed at 500 market for under \$1000.
- Modified X-1000 board for A2000 — same fast disk interface, may be populated with up to 4 Megabytes of RAM. Auto boot for hard drive. Pricing:— under \$600 depopulated, final price on populated board to be announced — expect under \$1300, depending DRAM prices.

Diskworks

(02)436-2976

- Pixmate — Image processor. Converts between various picture formats. Dozens of features. Extremely powerful. Review soon. ■

GP-Term

An "all things to all people . . ." approach to modem software design, GP-Term has the best of both worlds. Andrew Farrell explains.

MY FAVOURITE terminal program on the C64 was *GP-Term*.

It was powerful, easy to use, and included some very handy features. However, it was unusual that it also handled both ASCII and Videotext communications. In essence, the same design has been implemented on the Amiga, with its version of *GP-Term*.

In order to qualify my comments, I should point out that I use a modem an average of about 90 minutes every day. Everything from receiving files to and from contributors, to preparing and posting messages on several BBS's. I am not a mad keen Videotext user, but I understand that there is a great slab of BBS users who are.

Up until now, I've used a program called *Telrx*, which runs on my Amiga 2000 on the PC side, thanks to the Bridgeboard. It has dozens of pop down menu's, help screens and includes some real whizz bang features. *Telrx* would be one of the most popular choices of PC users, and quite probably one of the best PC based terminal programs.

So, when Greg Perry rang and described the features of his Amiga *GP-Term*, I had great expectations. Could this be the Amiga replacement for what I currently use? A hard line perhaps, but theoretically, any Amiga program should have no problem outstripping the power of even the best PC software.

As my version was a pre-release copy, there was no manual to read. It's well and truly on the way though, and by the time you read this, both the next version of *GP-Term* and suitable manual will be available to the public.

Getting started

A true multi-tasking program, put to

the test in writing this review, in which *Prowrite* ran as a background task. Your choice of wordprocessor is of course a personal thing, however it must have a SAVE AS text or ASCII only option to be of use with a terminal program.

To begin, click on the *GP-Term* icon itself, or open the drawer of services, and click on the one you wish to call. Providing you have everything set correctly *GP-Term* will boot, and then begin to try and phone and connect with your chosen number.

Once the program is up and running, users of *GP-Term* on the C64 will immediately recognise the status line at the top of the screen. The transition to the Amiga is made far easier with software such as this.

GP-Term defaults to Videotext mode. The Display and Extras pull down menu provide specific features for each mode of operation. Under Videotext Display offers frame capture facilities, slideshow and frame transmission for service providers.

Extras allows you to set your USER ID, and password, although generally it's not a good idea to include the later. Other interesting options include a time service charge, which at present may be either free, 6 cents or 9 cents per minute. A future version will allow you to enter your own rate.

The display colours may be modified, and the mouse de-selected if required. However, one of the most useful features is the Metakeys function. This provides a modifiable selection of ALT keys to select specific services directly, without having to physically enter a page number. A preset selection is included, most of which are suitable for the average user.

A status line at the top of the screen



tells you whether you're connected or not, the time elapsed, and charges incurred, along with the number of frames captured.

ASCII mode

Switching to ASCII mode throws the screen into 80 column mode. The status line expands, and a few additional features appear. Extras now includes a chat option, and send break command.

A Review Buffer menu is included, for perusing what you may have just captured. An editor would also be nice, but with the Amiga, it's a simple matter of pulling up whatever you prefer to use as a background task. I used *ProWrite* to enter this review - and it worked fine as it has an option to save as plain text. Important for modem transmission.

Transfers of files may be afforded by simply capturing text using the capture of on feature. By the way, just about all the commands have key short cuts, well worth learning. When transferring files using a specific protocol, a time to transmit function is useful, and it's there.

During file transfers the number of bytes received, errors, blocks, reason for last error, and current status are displayed. You can abort the transfer at any time. Essential for fickle minded editors.

However, highest up on my wish list for any terminal program is a tune or at least beep to indicate that a sleep induc-

ing process such as file transferring is complete. Amiga owners are spoilt rotten being able to indulge in other less mundane practices whilst sending programs to each other. But a gentle reminder to pull the *GP-Term* screen back to the front is in order. And indeed such a tone is provided, beeping away until you pay it attention. Well done, guys!

Setting your terminal parameters is a cinch. Each service may have its own modem initialisation string, dial and hangup sequence, and of course number of re-dial attempts. Officially this is set to five - but you can change it to whatever you want. One auto-logon string is also allowed. Greg promises me that a full SCRIPT language with BASIC like commands is in the pipe-line.

From the project pull-down menu, click on view configuration. You'll see a screen not unlike that displayed by *Diga!* whereby every option is viewed at a glance and changed at the click of a mouse. These include BAUD rates - up to 19200 (tested up to 2400 at present), terminal mode (VTX or ANSI), parity, word length, stop bits, line feeds, a set cost per minute, duplex, error checking (CRC, or Checksum), and thankfully an auto chop option.

There's also a great wad of protocols to try out, not all of which were operational on our pre-release version. These include the normal Xmodem, Ymodem protocols, and also Ymodem Batch, Wxmodem, Zmodem, Punter and Sealink (recommended!).

Several other option at the bottom of the config screen allow you to set a whole bunch of other amazing things, including directory paths (tell *GP-Term* where to find things), selectable font, whether or not to save files of certain formats with or without icons, and a special option when you're not sure

called DUNNO. Not sure whether the final version will have this, but I suggest they leave it in.

Conclusions

That about sums it up. There's more in the pipeline as mentioned, however as it stands, *GP-Term* is an excellent package for all round modem users. (The manual didn't reach us in time to be included - watch for a future mention.) At \$99 it rates with the likes of *Diga!*. If you're just after a straight terminal program, you may find it hard to justify *GP-Term* as it stands today. *Diga!* has more features for the extra \$30.

BUT, *GP-Term* will soon boast many options supported by *Diga!*. Upgrades will be inexpensive (around \$15-\$25). It's certainly excellent value for Viatel users who are into BBS's and verse visa. Interested persons should contact their nearest dealer, or hassle Greg Perry direct on (07) 366 3295. Keep Australian software writers programming. Buy it, don't pirate it! ■

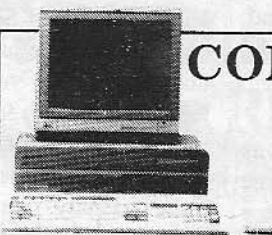
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A look at Superbase Professional

by Tim Strachan

Here's a program that lives up to its name in all the important ways. Precision Software has given a long pedigree to the core of this program, having made versions for previous Commodore machines (the 64 and 128) and others too - the current version, with changes for differences in operating systems, is also available for the Atari and for MS-DOS machines that can handle the GEM operating system.

All bias aside, it would seem that the the program is made for the Amiga's graphics/sounds capabilities and, more usefully, its multi-tasking.

What's the same?

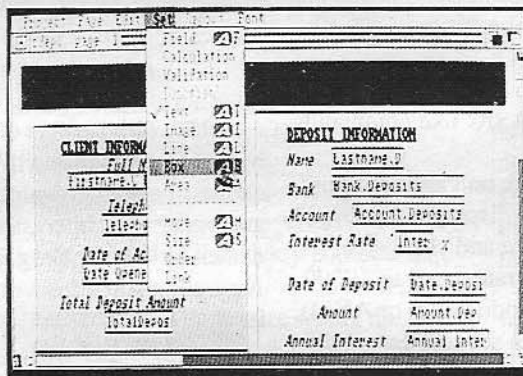
The forerunner to this program was and is *Superbase Personal*, a fine database program with the same general interface and full compatibility with *SBProfessional*. I've used *SBPersonal* for 18 months to organise a number of databases and mailing lists and it's never let me down.

One of the best features is the existence of a VCR-like control panel which allows you to perform various basic functions: fast-forward and backward through files; "frame-by-frame" forward and backward; buttons for top and bottom of file; stop, filter and query buttons.

The mouse is well used, although most important functions have a keyboard equivalent, so you won't be wasting time flipping from mouse to keyboard if you don't want to.

What's new?

SBProfessional improves on many aspects of its predecessor and adds a number of powerful new features. The FORMS EDITOR takes the FORM



VIEW facility of *SBPersonal* much further - you can set up special Forms over many files with your own interface in terms of colours, fonts and even graphics, and use the form as your data entry (or do it for someone else to make it more "friendly"), or as a method of creating special printouts for invoices, invitations or whatever. You can also generate REPORTS on screen or printer in a format that you design.

The most powerful new feature of the database is the DATABASE MANAGEMENT LANGUAGE (DML), which is essentially an extended BASIC optimised to make the most of the program's potential for data manipulation. As far as I can see, the only limit to what you can do with data is your own imagination.

The basics

For those who haven't used a database before and wonder if they should get one, the advice is yes, if you're running a business of any kind or are a student or just like organising your life.

Everyone has address books, lists, and mounds of accumulating detail about everything, so everyone is a candidate for a database - if it's easy to use. The beau-

ty of a database is its endless expandability - you may want to create an ongoing record of your disks, albums, or cassettes and be able to print it out at times, change various details about it (fields), and generally change some things without changing everything.

Once you realise how easy it is to organise your information you'll probably over-organise it, but you've got nothing to lose - except information, heh heh... Backups are important, in other words. Never experiment on your only copy of a database.

It's fairly easy to get started with *Superbase* - if you know about databases or are an accomplished Amiga user, you won't even need to read the manual. You can start from either the Workbench or the CLI, though using the CLI will require entering a STACK of 8000.

You are presented with a window showing a message about using a dongle (which is necessary for running the program - a reasonable form of copy protection for such a powerful program, I guess), and your next step is to open a FILE from the Project menu and start entering data. Or you'll set up a file with the NEW file option.

This is an easy process, but it's worth planning the setup of your new database with a bit of thought first - do you want to be able to "relate" the information in this database with other databases? In that case, create a field which has, say, a unique numbering system which can be accessed later in relation to other files. For example (and this is used in the examples on the SB disks), use some sort of field such as AXXX where the x's are numbers unique to each record, and A can be any of the letters of the alphabet. In practice, however, unless

you're being sophisticated, you'll be sticking with the data within one file.

As an example of a database, I'll use my own SUBSCRIBERS database. This is essentially a mailing list with added information about valued subscribers, so that the FIELDS are defined in order as follows:

NAME
FIRSTNAME
STREET
SUBURB
POSTCODE
TELEPHONE
ORDERS
PAYMENTS
BANKCARD
MD7CONTRIBUTION

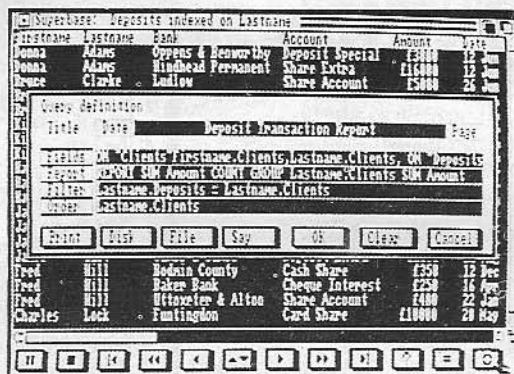
and various other attributes, which I can add as I think of them.

The main problem with a database is the original entry of data - once you've done that the power of a good database makes you glad you did.

Now it is possible to use the MAIL-MERGE facility, allowing you to slot details of any kind from your database into a form letter, creating as many "personalised" letters as you like. Or you can print out labels of any kind, "export" or "import" parts or all of files as simply text lists, send any kind of information to your printer at any time, and so forth.

Every time you're about to perform one of these functions, you're presented with a FILTER requestor which is a well-designed method of selecting just the information you're interested in from the database. This is a very powerful function and does allow you to "filter" out any information that's not relevant to your current needs. The QUERY function is similar to FILTER but allows you to range over more than one file, and they can be saved for later use.

Another useful facility is the use of EXTERNAL FILES, ie you can see the contents of the external file in the current record by simply clicking on a button. This file may be a text file, in which case *SBPro* brings up its TEXT EDITOR, which can handle files up to the



limits of the machine's memory. This editor can be used for creating mail-merge files, memo fields and the like. External files can also be IFF graphics or sound files, which can be displayed or played. This capability lets you create custom slide- and sound-shows interspersed with text, which can be as complex as you like if you use the programming language to customise them further.

There are more than 120 DML statements and functions, which allow you to anything you can do from the rest of the program's menus, filters, queries, and so forth. Further, you can perform screen dumps, have your information spoken to you, and generally set up a "front-end" for any specific application. You can even make your own menus, requestors and dialogue boxes. There are three levels of file passwords for security purposes, and 21 definable Function keys, and you can set up the startup-sequence to automatically perform a number of functions for you before you start.

PAL version

Available now is the PAL version of *SBProfessional*, meaning that you can use your whole screen rather than just 80% of it. The whole thing comes on 3 disks, with the *SBPRO* program on one, *SBFORMEDITOR* on the next, and a data disk with example databases to help the learning.

I couldn't get the graphics slideshow example to work completely but it gave

the idea, which was that it is possible to set up a slideshow with sounds from the External file and with customised screens of text.

Anyone wanting to get into the program on a professional basis, for say a small business, should think about getting a hard disk - accessing the program from 2 disks would soon become slow and irritating, as it would with any other large program dealing with lots of data. I've installed it on my hard disk from Expansion Systems and it's as speedy as it should be, and should be even faster when the 1.3 version Fast File System for hard disks becomes available.

I couldn't get the program to fall over, except at the beginning due to the fact that one of my *SBPersonal* files should have been "reorganised", a process that tidies up files which have had fields changed or deleted in the past. It seems also that the program looks for Printer drivers and the Printer.Device from Version 1.3 of the Workbench. In fact the main program does not come on a Workbench disk, but as a stand-alone program which I presume you're expected to run with your own Workbench disk.

A couple of weeks after sending off my registration card I received back an envelope with a "Verification of Registration" card telling me my Registration number and password for logging onto the BBS which has been set up to handle any and all questions, suggestions, and sharing of developments in applications. This seems to be very well organised, and it looks like this program is going to be supported to the hilt. There is also a hot-line problem number and a new user is entitled to 90 days of "Premium Technical Support". It's a pity that all that requires an expensive overseas call.

Published by Precision Software Limited, distributed by Diskworks Pty Ltd, 178 Pacific Highway, St Leonards, 2065, Tel: (02) 436 2976

Write and File

by Andrew Farrell

A WYSIWIG word processor with an in-built database, but only for those of us with a full megabyte to play with! Could this be the Amiga's answer to Q and A on MS-DOS machines?

SELECTING A wordprocessor always seems a matter of deciding which points to trade off against the features you really need. Your final choice is always a compromise. It appears the real power is only ever found in a straight text word processor such as *Word Perfect*, whilst the interesting bells and whistles, such as multiple fonts and styles, are limited to very simplistic editors.

Write and File is yet another of the bells and whistles genre, however it also incorporates powerful functions normally only found on more straight up and down packages. But first, I should point out that the program is probably better described as a wordprocessor with built in list manager, rather than an integrated wordprocessor and database.

Its greatest feature is that of presentation, or look and feel. It has a good look and a great feel. That can be one of the most important considerations when purchasing a program such as this, which has so many contenders.

Write

As the package arrives, the program defaults to document mode. Once booted, a blank document is ready to be edited. Side and top rulers appear in three tone brown/beige. To the right, a slide bar and tiny formatting icons appear.

Each document window - you can open several - may be sized and positioned as desired. All the rulers and slide bars remain visible. As you move the pointer around the screen, it changes to tell you what function is performed at that point in the screen.

For example, if you move to the slide

bar next to the left ruler, the pointer changes to "Ruler Change". At the bottom left of the document window, the tiny icons representing the ability to hide or show the rulers cause a similar message to appear as the pointer.

This is an excellent feature, that makes finding your way around the screen many times easier. Softwood, the program's publisher, describe this as a "Smart Mouse Pointer"

Editing

The pull-down Edit menu is located around the centre of the top menu bar. From here you can carry out the most common functions of Cutting and Pasting text. The first option is a REDO/UNDO text function - allowing you to restore deleted text portions, or erase recently made changes. All the normal Amiga shortcut keys are supported - such as Amiga-X for Cut - which interestingly is the same as the Apple MAC which uses Apple-X.

Selecting text is done using the mouse pointer. A double click will highlight the current word. Specific sections can also be highlighted in the usual fashion using the mouse. Cursor movement is somewhat clumsy, as the cursor is difficult to see, and movement is erratic.

Setting margins and TABS

Adjusting your page layout is very simple. Virtually all options can be selected using the mouse, simply by dragging various bars in the document window. Since the icon changes to indicate

The screenshot shows a window titled "Write & File: Demo". A menu is open, displaying options: "Clear", "Cell Left", "Cell Right", "Cell Up", "Cell Down", and "Repeat Data". Each menu item has a corresponding icon to its right. Below the menu is a table with 6 columns: "Dwelling", "Loc", "Baths", "Garage", "Pool", and "Price". The table contains 16 rows of data, numbered 1 through 16 in the first column. The "Loc" column contains city names, and the "Baths", "Garage", and "Pool" columns contain numerical values or "Yes/No". The "Price" column contains monetary values.

	Dwelling	Loc	Baths	Garage	Pool	Price	
1	House	San	4	4	Yes	\$5,000,000	
2	House	San	4	4	Yes	\$4,000,000	
3	House	Ma	3	3	Yes	\$1,400,000	
4	Penthouse	Cen	3	Y	Yes	\$1,250,000	
5	Beach House	Ma	3	2	No	\$1,000,000	
6	House	Tu	2	2	No	\$900,000	
7	Beach House	San	2	N	No	\$750,000	
8	Beach House	San	3	2	No	\$600,000	
9	House	Santa Barbara	3	3	Yes	\$500,000	
10	House	San Francisco	3	2	Y	\$450,000	
11	Duplex	Encino	4/4	3/3	2/2	No	\$400,000
12	House	San Francisco	4	3	2	No	\$400,000
13	Townhouse	Malibu	3	2	Y	No	\$400,000
14	House	Pasadena	4	3	3	Yes	\$400,000
15	House	Santa Barbara	4	3	3	No	\$400,000
16	House	Santa Monica	4	3	3	No	\$400,000

what each bar is for, it's not difficult to locate the one you're after. Multiple TAB settings are handled for each paragraph, as well as separate justification and margins.

Proofreading and spell checking

Write and File provides some excellent features for the professional writer, or student. A word, sentence, paragraph and letter count is available as well as a reading level, average sentence length and average paragraph length.

More importantly, you can also spell check a specific paragraph, the entire document or just one word using the 100,000 word dictionary. Using floppy disk, the checker is not super fast, however it is possible to copy the dictionary to RAM and tell *Write and File* to locate it there. In fact, all the major directory paths may be modified in order to facilitate various hardware configurations.

Several user dictionaries can be set up to facilitate words peculiar to your particular needs. Words added can also be deleted.

During a spell check, incorrect words are highlighted, and you may then edit the word, ask for a suggested replacement, add it to your user dictionary or ignore it. It's also possible to look through the dictionary manually.

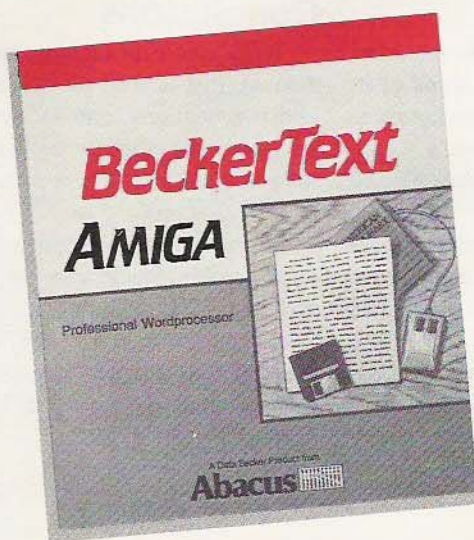
Search and Replace enables you to quickly search for text, and optionally replace that text with something else. Case

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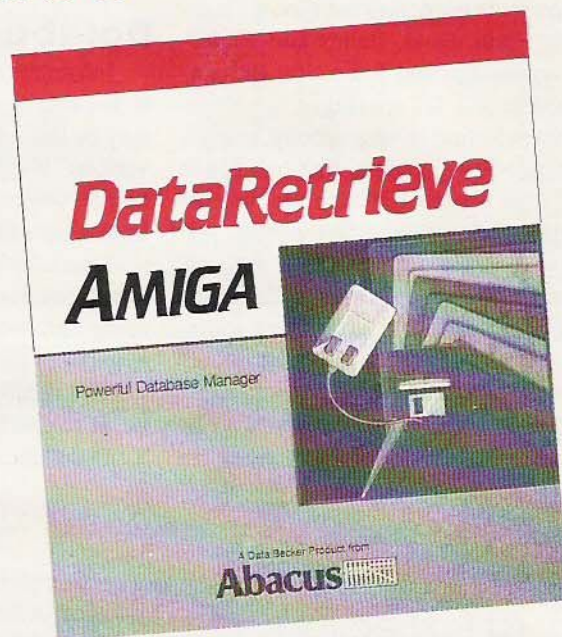


BECKERTEXT — is more than just a word processor. It gives you all the easy to use features found in TextPro, plus it gives you a whole lot more. You can incorporate sophisticated IFF graphics anywhere in your document. It also automatically hyphenates words, automatically generates both an index and a table of contents. Becker Text goes further than other word processors. It can display and print multiple columns (up to 5 per page) for professional looking newsletters, reports, etc. Its spelling checker can either check an entire document, or it can be ON-LINE, and spell check AS YOU TYPE!! Becker Text works with most dot matrix printers, and you can produce a printer driver to work with any printer. It includes driven routines for the latest laser printers. When you need more from your word processor than just word processing, you need Becker Text.

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may be ignored or recognised, the search can be from the current cursor position or the entire document.

Styling text

Write and File does not enable graphics to be included, however you can alter the type fonts used, and the type style including Plain, Bold, Italics and Underline, Superscript and Subscript, and single, double or 1 1/2 spacing.

Font selection is very speedy, using a single pull-down menu a drag-bar. Much better than a slow file name requestor! The manual doesn't mention whether it is possible to add additional fonts.

Once you mix a lot of type faces and styles, the editor does slow down somewhat - however not to the point of becoming too cumbersome.

Printing out the resulting text can be done in either graphic or text mode. In

graphic mode all the selected fonts and styles are reproduced exactly as they appear on the screen. In text mode, the selected font on the printer is used, however underline, italics and bold are supported as long as the printer handles them.

Database

Information entered into the database, or list manager as I prefer to think of it, may be shared with the wordprocessor in various ways. One is from a Mail/Merge, where a letter can be personalised from a list of many people.

Database lists can be transferred directly, or custom reports can be designed using the wordprocessor and selected fields from the database.

The database itself is fairly simplistic. It resembles a spreadsheet in layout. You label the columns, and enter the data

in each row. Data is viewed and entered using this format. A simple filter can be set up to limit which records are displayed whilst browsing information. Searches may be conducted using basic mathematical operators. Beyond that, the program is not terribly powerful.

Conclusions

Write and File includes an excellent manual, that is well illustrated. Divided into two sections, one for the wordprocessor and the other for the database, each section also includes its own index and reference section.

File requestors are easy to follow, and work quickly. Screens are well designed, and the natural colour choice is excellent. The program makes excellent use of many of the Amiga's features, and is deserving of being called a true Amiga product. ■

TxEDPLUS

(a text editor)

by Tim Strachan

Heath of MicroSmiths has been well-known in the Amiga community since its inception, for, amongst other things, *TxED* and the AmigaDOS Replacement Project.

I recently received my copy of his *TxEDPlus* which is a smaller, faster and expanded version of the original *TxED*, the text editor of choice for many people for a long time, due to its small size and speedy operation.

All the features of the original remain and quite a few others have been added. All the commands have keyboard equivalents allowing for greater speed in operation once you get used to the program.

The same speedy Search and Replace operations are available, and it multi-tasks well, allowing any number of *TxED* screens to be present (limited only by your memory).

In the "Random" menu there are a few new features along with the old - Word-wrap and Overstrike can be selected,

screen colour combinations can be changed in four different modes, there is a mode for entering HEX notation for editing hex dumps, you can open a New CLI at any time with a simple keystroke, and likewise open a new *TxED* window for cutting and pasting at any time.

A good feature is "Strip, etc" which will let you take a word processor file with embedded codes and strip them out, very useful in turning a file into straight ASCII. All the usual editing commands are available - cut, paste, insert and cut block, delete to beginning or end of line, delete word and so on. The essence of the program is simplicity and speed, and intuitive use.

What's new in the program is that the menus and keyboard are now configurable, in the tradition of Zirkonics *Professional Text Engine*, though not as extensively as that Rolls Royce of text editors.

There are links with the *ARexx* macro processor, which will let you set up specialist applications such as mailing list management if you wish. The treat-

ment of this connection in the manual is rather confusing, as if the authors are still trying to work out how such "modular programming" works. William Hawes (of CONMAN fame) is responsible for *ARexx* on the Amiga and the future of the concept is promising. I think we'll have to wait a while to see what the real possibilities are.

The manual is generally pretty clear, and the program disk has been densely packed with information and extra programs. One of the bonuses is the provision of FASTFONTS, BLITZDISK and FF along with an excellent new system font, all of which you can use in your startup-sequence to speed up and improve text display on any disk.

The full AmigaDOS Replacement Project is on this disk with a manual as well (Version 1.1).

All in all, this is a worthwhile purchase, if you do a lot of text editing and want to optimise your system with some excellent extra programs.

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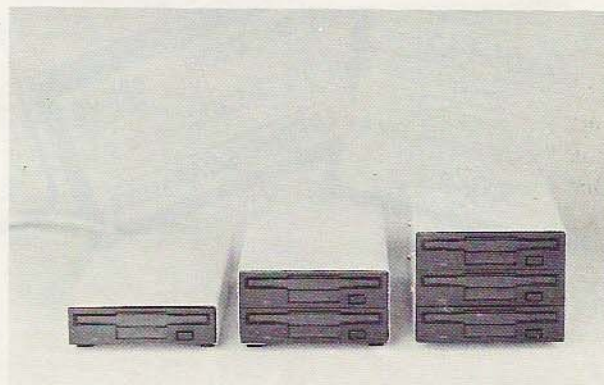
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The all-time best of public domain software

by Tim Strachan

Some users may be new to the concept of Public Domain (PD) Software, which is a term used to describe that software which has been written and placed at everyone's disposal.

Some of it is described by authors as "Shareware" indicating that there is a moral obligation on you to contribute something like \$15 or \$20 if you use the program regularly. This money goes towards helping out the programmer to create more cheap, quality programs, as well as being a token of appreciation which makes the programmers feel good. Sending in your money often results in your getting a full manual and updates, if written, of the program in question. All in all, a good concept and worth supporting for everyone's good, although when it comes to sending a bank cheque to, say, the US, it'll cost another \$6 for the bank charges.

The PD software available for the Amiga is of a very high standard, and there's now a lot of it. The Amiga seems to make enthusiasts of people, and there is already quite a tradition of swapping information and help. Currently, there are 138 disks available in the Fish Library, collected and distributed by Fred Fish in the US, along with other collections, such as the 26 Amicus disks (collected in association with the magazine *Amazing Computing*), the 15 Amigan Disks (in association with the magazine *Amigan Apprentice & Journeyman*), and a variety of other collections, program demos, animations and so on. All for the price of a disk! Details of where to get them below.

In this piece, I'll describe some of the PD software I've found especially useful, or time-saving or valuable in some way or other. Note that this is a personal and selective list, and there are many more excellent programs available for general

or specific purposes. At least this should give an idea of where to start with PD software.

CONMAN by William Hawes - Fish 133

Invaluable for anyone using the CLI at all, this is a "replacement console handler", which gives a history of commands accessible and re-usable via the arrow keys; command line editing; hot-keys for specific functions and a lot more. Very small, and can be run with any other program. This will double the speed of using the CLI. Shareware.

DUTILS by Mike Hansell (Australia) - BBSs or (02)6742723

This is a "Hacker's directory utility", which allows you to perform many CLI and Workbench functions with mouse-clicks and single keys. Mike is working on an improved interface which will be ready by the time this is printed, and has spent a great deal of time making this a great tool. You can diskcopy, format, check for Viruses, edit disk sectors, print out anything, play sounds and view graphics, you name it. Shareware (\$15). Mike, along with Martin Boyd, also created VACCINE, a virus checker which looks for any boot-sector viruses. These two are constantly updating their virus-checking utilities.

DISKMAN by Greg Cunningham - Amigan #11

Another in a great line of Directory Utilities, which provide a way of rapidly doing most complex CLI functions without too much typing. This one provides two windows in which to view di-

rectory listings for such tasks as copying, renaming, making directories, etc. As usual you can read files, view pictures, and so on. Anyone who's not a touch typist must have one of these programs.

POPCLI by John Toebe - Amicus #15

A great utility to run in your startup-sequence, this one contains a "screen-blanker" which will blank your screen after a specified time of no computer input. This saves the screen from burning out through over-use. The other capability of the program is a "Hot-key" sequence (Left-Amiga ESC) which can be any command you wish. The default, and probably the best option, is to create a new CLI window at any time, no matter where you are or what you're doing - most useful, and a great use of multi-tasking.

VDK AND ASDG-RAM RECOVERABLE RAM DISKS - Fish 58 & MD6

These two perform essentially the same function - the problem with the Amiga's RAM disk is that when there's a software error, all the contents of the Ram disk are lost when you reboot. Most annoying if you've been operating in Ram to take advantage of the speed. These two programs by a bit of software wizardry keep the contents of the Recoverable ram disk intact during a warm reboot, giving you both speed and security.

DIRMASTER by Greg Peters - Fish 129

The latest version of this cataloguing program which is a very useful adjunct

to your growing library of disks. Set up to automatically catalogue whatever disks you put in the drive according to the format you want (remove info files, directories only, etc). Helps to solve that problem of "where was that program...?" . Shareware.

DFC DISK COPIER by Tomas Rokicki - Fish 131

A very neat little diskcopier which can replace both Disk-copy and Format on your disks. Has an easy-to-use Intuition interface, and lets you copy up to four disks at a time, by copying the source disk into memory (if you have enough) and then writing to df0,1,2,3. Very good for clubs, small software houses or diskmags.

RUNBACK - Fish 73

This solves the problem of running tasks from the startup-sequence which previously clung tenaciously to the CLI process that they started from, thus keeping windows open unnecessarily. Runback lets you run a task in the background without this problem, and is a must for anyone customising startup-sequences.

DOSKWIK by Gary Kemper - Fish 129

Two programs are included in this, called READKWIK and RITEKWIK, which between them let you read a collection of files into one large non-DOS file which can then be written to another device like a RAM disk. Much faster than using the normal copy routine with a lot of files, and the perfect way of setting up a Recoverable Ram Disk (see above).

AMIGADOS REPLACEMENT PROJECT (ARP) by C Heath & Scott Ballantyne - Fish 123

This is a collection of rewritten (in assembler) AmigaDOS commands which are faster, smaller, and more consistent than the originals, and have more on-line help (by typing ? after the command name). Definitely worth installing on your disk, and there are improvements being made all the time. Just make sure that you also use the ARP.LIBRARY with them.

WORDWRIGHT WORD PROCESSOR by RTL Programming Aids - Amigan #14

A PD word processor which puts some of the commercial programs to shame, and also includes an "idea processor/outliner" for compressing and expanding notes and headings. Run from the CLI, it needs a little effort in reading the manual, but the effort is well rewarded if you don't want to spend \$150 or so for a commercial program.

UEDIT by Rick Stiles - Fish 119

A shareware text editor that leaves ED for dead - has all kinds of clever features, such as learn mode, command language, menu customisation and other user-customisable features.

VIRUSX by Steve Tibbett - Fish 37

A good boot sector virus which runs in the background and checks for any nonstandard boot sectors automatically.

If you want to investigate any of these programs or others, you can usually find them on a good BBS, or lacking a modem, you may be able to get copies from your local user group.

If that fails, you can get any of these and more from Megadisc on (02) 9593692 at a cost of \$5.50 for any disk (check the ad in this issue). You're missing out on a great resource if you don't check them out, and probably paying a lot of money for equivalent commercial stuff. If you know of any good local public domain software, contact the writer so he can tell everyone about it. ■



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Analyze!

Reviewed by our financial writer of many aliases, **Terrence E. Pihlgren**

IN MY LAST article I explained the basic features of spreadsheets common to most spreadsheet programs. In this article I will examine *Analyze* from the point of view of additional features which the package offers, discuss the utility value of *Analyze* extra features and explain what I see as weaknesses of the package. *Analyze* retails at \$199 and is produced by the same software company as *Scribble* and *Organize*. Consequently *Analyze* uses the same conventions as these programs.

Features:

Analyze is not copy protected, in fact the program does not even require the user to input a word from the manual. I am generally opposed to protection schemes which will not allow the disk to be backed up, and although it is somewhat tiresome to have to look up a word this is probably the least offensive type of protection, but full marks to *Analyze* on this score.

One thing that is immediately noticeable, *Analyze* is FAST. I consider this

a major plus. Unlike *VIP Professional* which seems to load from disk whenever an operation needs to be carried out *Analyze* performs such things as copy, move, insert, and delete without referring to the program disk.

This saves you time and as spreadsheets are productivity tools any feature which increases productivity is welcome. *Analyze* has several of these features:

Multiple menu selection

Analyze offers a feature where more than one menu can be selected, this means that it is not necessary to keep switching back to the menu to carry out an operation.

An example of this would be: select COPY by the pull down menu, click left button while holding the right, move down to the next selection, for example MOVE again click the left button while holding the right, then release the right button.

Analyze will then prompt you to select the range to be copied etc. When the COPY routine is complete *Analyze* will immediately enter the MOVE mode.

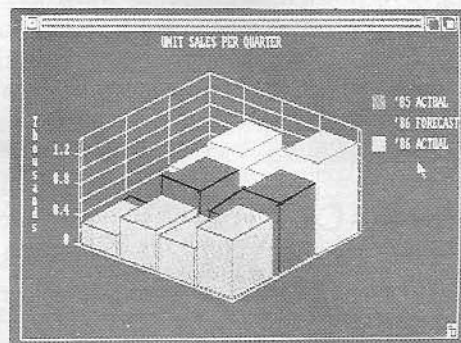
Macro menus

The *Analyze* manual has a section dedicated to information on producing macro menus.

This means that you can write your own menus to appear at the top of the screen replacing the *Analyze* program menus for a given spreadsheet.

Interestingly enough the examples given in the *Analyze* manual show mini helps a feature that *Analyze* itself does not have.

Whilst this is not really a feature of the program and is possible on any pro-



- high-res 3-D bar graph
- legend; grid; automatic scaling
- adjust view with pitch, yaw

gram which uses the Lotus standard the section of the manual is clear and easy to follow.

Mouse control

Previous to my use of *Analyze* I had tried to use a mouse with Lotus in an IBM environment. However used on Big Blue a mouse was no real benefit.]

By now Amiga owners know what a boon mouse control can be depending on the design of the program. *Analyze* provides extensive mouse control ranging from pull down menus to pointing (ie highlighting ranges). In my last article I said that perhaps keyboard could be faster than mouse. I take it back, *Analyze* provides the best of both worlds. How much easier it is when working on a graph to be able to do all required selections with mouse. How much faster too!

One example of the added value of mouse control is found when you need to move the cursor on the screen. With the use of arrow keys we need to wait while the cursor works its way across the screen, this is true of both *Analyze* and

Item	Meas.	Units	Dollars	Purchases
Radios	ea	2	\$50.00	8 \$200.00
Ropes	ea	100	\$200.00	35 \$70.00
Game	ea	35	\$180.00	12 \$50.00
Books	ea	2	\$5.00	21 \$32.50
Oranges	ea	100	\$25.00	150 \$37.50
Locks	ea	59	\$59.00	18 \$18.00
Pencils	bx	50	\$75.00	8 \$12.00
Pens	bx	40	\$12.00	35 \$10.50
Juice	gal	15	\$15.00	
TOTALS			\$621.00	\$435.30

- sort using primary/secondary keys
- use bold, italics and underline to improve appearance

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VIP: contrast this with the use of the mouse, you point to the cell you want and press the left button, instantly the cursor appears there. I like it!

There is also the use of the scroll bar a feature I must admit that I have not made much use of on many programs due to the jerky effect. *Analyze* also provides scrolling line by line using the scroll arrows. This seemingly simple feature overcomes a major problem I have struck with keyboard use of the Lotus standard, ie to scroll down the screen you hold the arrow down then you find the cursor is not where you want it.

These may seem to be simple points but they do reduce the time needed to construct a spreadsheet.

Calculation alert

A feature offered by *Analyze* which I considered useful is the calculation alert feature.

This means that where the program is recalculating a large spreadsheet which can take a few minutes if the spreadsheet in use is large (given an Amiga with extra memory) or are particularly complex.

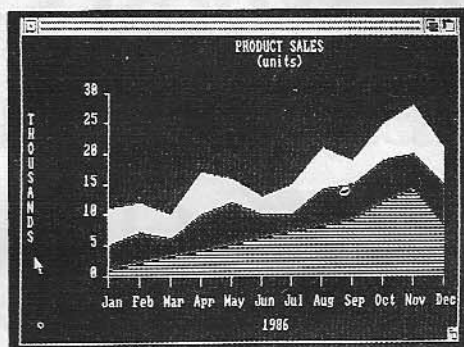
Your computer will give a beep to let you know the calculations are finished.

Recalculation while entering values

One feature offered by *Analyze* which at first glance appears frivolous is the ability to convert a formula to a value by pressing F9 when entering the formula. Of course inserting a value in your spreadsheet is usually exactly what you do not want to do in case you need to copy the cell. However as pointed out by the *Analyze* manual this comes in handy if you are using the PI function for example. By pressing F9 when you enter the function the value of 3.14159 is entered, this makes further calculations of your spreadsheet much faster, always a worthy goal.

Single key save function

Another feature I liked with *Analyze*



- area graph with titles
- graphs change automatically when spreadsheet changes

was the ability to quickly and efficiently save work once an initial save has been carried out. The feature works this way. Once you have entered the path and filename of the file you wish to save you can then make further updates to the file by simply pressing F8.

This is a benefit I cannot praise too highly. We all know we should do progressive saves, but it can be tedious even on the Amiga with its enhanced operating system which allows saves to be carried out using the mouse without ever touching the keyboard: but a program that allows file updates by pressing one key; all programs should have this.

Lotus compatibility

The designers of *Analyze* have provided two formats whereby your data can be saved. *Analyze* has its own format as well as the facility to save your spreadsheets in a 123 format. This is the format used by the Lotus standard, and the benefit of this is that spreadsheets saved using the 123 format can be used on an IBM or compatible running Lotus or Symphony.

Other features

Particularly on a 512K Amiga it is easy to run out of memory when entering your spreadsheet. *Analyze* offers the ability to bypass workbench and start the program from CLI thereby making 40K available.

Just a minor point is the display of

negative numbers, *Analyze* shows them in a different colour both when the cursor is on the cell and when it isn't. I liked this feature which will make sure you don't mistake a negative number for a positive, not hard to do when you are looking at your monitor screen with bleary eyes at two in the morning.

Graphs

A major strength claimed for *Analyze* is its graphing capability, and there is no doubt it is versatile when it comes to graphs. *Analyze* offers powerful graphing facilities with numerous worthwhile features.

Multiple graphs

Analyze offers multiple graphs, ie it is possible to set up four graphs in memory and display one or all of them at the same time. I consider this a significant advantage. While the Lotus standard allows you to save graph settings and recall them to display different graphs.

Analyze does it faster and it is simpler to do. The writers of *Analyze* seem to have put a good deal of thought into ways to streamline the program to allow you to produce your spreadsheets more efficiently.

Sizing graphs

Another important benefit of *Analyze* is the ability to size your graphs using the familiar Amiga gadget. This allows you to move graphs around the screen, shrink them, and enlarge them.

You might ask what is the use of the sizing feature. If you are having trouble seeing the detail of your graph you can easily enlarge it; or if you shrink the graph to a suitable size and relocate it on the screen you will be able to have both your data and graph on the screen at the same time.

Make changes in your data and *Analyze* will change your graph instantaneously. This is a great feature to illustrate the principles of graphing to your children.

Colour modes

Analyze has a four colour mode and a striking looking eight colour mode for graphing.

When you enter the eight colour mode the background turns black and the graphs are brilliantly displayed in colour.

Printing graphs

One very worthwhile feature that *Analyze* has is the ability to print your graphs from within the program, compared with the Lotus standard that requires you to save your image, exit the program, start a separate printgraph program, then load your image to finally print it. Another example of *Analyze's* improved design to increase efficiency and productivity.

I liked the *Analyze* pie graph format too, where each piece of the pie is separated rather than just showing a circle divided with lines.

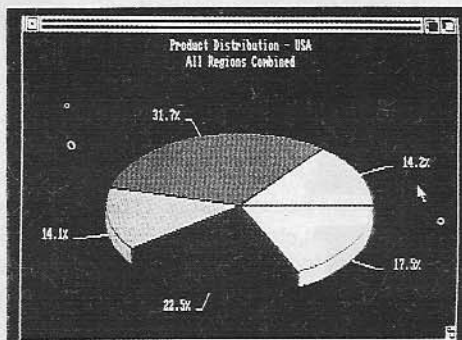
Analyze also has a special 3D graphing function that has pitch and yaw controls. The manual points out that often a 3D graph will not be appropriate. However considering that the program's designers went to the trouble to include the 3D feature, I would have liked to have seen some explanation of the type of situations where a 3D graph would be beneficial.

Analyze is capable of generating mini bar graphs on the worksheet itself without going into the graphing mode, but this is intended only as a rough and ready indication of the magnitude of the values.

Flaws:

Helps

Compared to the Lotus standard that I mentioned in my last article I missed the mini helps at the top of the screen. *Analyze* has menu selections but lacks the mini one line helps. Also on the subject of helps if you press F1 while in *Analyze* you are greeted with a box which tells you to use the / key, or the mouse.



- high-res 3-D pie chart
- up to 8 colours
- automatically calculates percentages

There is no extensive help available as offered by the Lotus standard, which takes you to the appropriate help according to which operation you are currently performing.

Investment calculation functions

As this article is about application programs to help you manage your finances an examination of the built in functions offered is appropriate. Most financial functions such as NPV, PV, FV, and PMT, are available. However I did notice the absence of Internal Rate of Return (IRR). I consider this a significant oversight as this is a difficult calculation to perform manually.

For those *Analyze* owners who need to use this function I suggest the following rather crude method of obtaining the IRR.

Calculate NPV using the cash flows involved. Place the discount rate to be used in a cell where it can be referenced by the function. Then alter the discount rate either up or down until the NPV is at or near zero.

The discount rate at this point is the IRR. While this is tedious when performed manually, this is, in fact the method used by spreadsheets with an IRR function albeit they do it much faster.

Range name menu

While testing *Analyze* I tried the range name feature using the F3 key. This is meant to facilitate copying and moving ranges by throwing up a menu of all your range names allowing you to select the range you want to copy, eliminating the need to type in the range name.

When I tried it the menu of names came up OK; however the gadgets marked up and down that are supposed to move you through the menu to allow selection would not work for me. Perhaps this is a bug, or perhaps I missed something obvious, whatever the reason, I believe the concept would be a worthwhile benefit of the program.

Conclusion

In summing up, *Analyze* is a good value spreadsheet that comes with excellent documentation with a high standard of clarity. It offers many powerful facilities for a good all round spreadsheet. However if you are into financial analysis and investment decisions I consider the lack of an IRR feature a drawback. Although as I have explained, this can be overcome.

Analyze can produce beautiful coloured graphs on your Amiga screen, however in my view unless a graph is printed it is of little use. So unless you have a colour printer you will not gain the full benefit of the *Analyze* graphing features.

I particularly missed *Analyze's* lack of built in helps which are provided as part of the Lotus standard.

The price is right and *Analyze* offers benefits and has some weaknesses that you will need to weigh when making your purchasing decision.

Available from your local dealer, RRP \$270. ■

PORTS OF CALL

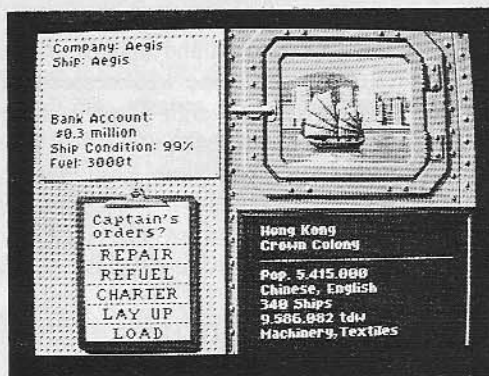
by Andrew Farrell and Adam Rigby

"Software with Hard Facts". That's the motto behind Aegis Interactive Entertainment title, *Ports of Call*. Packed with the results of many months of research, along with a good serving of graphics by Jim Sachs, this program is more than just a shipping simulation.

It captures part of the spirit of free enterprise on the high seas. Only 20% of the world's shipping is carried on by "tramp" operators. These are ships prepared to carry all types of goods, to just about anywhere in the world.

In *Ports Of Call*, you take the role of both shipowner and ship captain, applying economic strategies as well as expert manoeuvring skills. Up to four players may join the fray of competing vessels. The overall strategy is flexible.

You can go for the fast buck, using cheap ships and juggling freight rates to force competitors into bankruptcy. Or build a solid financial basis with superior high speed late model fleets, ready to snap up the more lucrative deals.



Getting started

The game plays on any of the Amiga range, and begins by recording your name and registration number. From then on, you are informed that this game was written for you - your name appears along with the registration number - whenever you first boot up the game. A good deterrent for would-be pirates. The game also requests a word from the manual, but rather than asking for an obscure line and word number, it asks an intelligent question that can be answered by referring to a certain page.

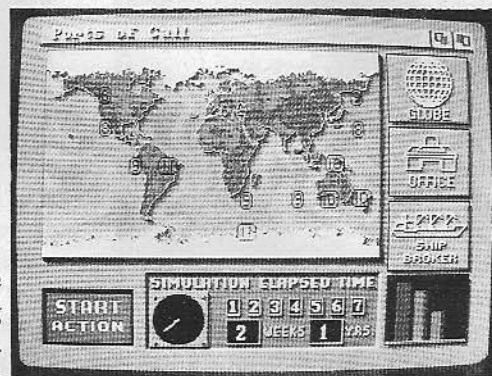
I still find this sort of copy protection a bit annoying, but it's something we just have to live with.

Game play

An old game may be restored, or start afresh, selecting the time duration and expert level. Up to four players may compete, each with a separate company name and captain's name. Next up, you choose the home port from a possible 28, all of which include a small graphic depicting a recognisable landmark - the Sydney Opera House makes an appearance, with glimpses of the Harbour Bridge.

Once everyone is registered the main simulation screen appears.

This screen basically lets you know who is where, what the general status of the various players in the game is and how long the game has been in play. From this screen you can bring up the general Menu



Bar for various functions such as SAVING your GAME etc.

The Project Menu includes

About . . ., which brings up a window containing copyright information and the version number. Free Memory measures (in bytes) how much memory is currently available.

New Game will clear from memory the current game and start an entirely new game.

Load will bring up the storage requestor so that you may load a previously saved game to resume play.

Save will save the current game you are playing, provided it has already been named; otherwise, the storage requestor will appear so that you may enter a filename and directory.

Save As will bring up the storage requestor allowing you to specify any drive or directory and filename to save the game to. After selecting Save As . . ., type the name of the game in the filename box and the directory you want to save it to in the drawer box and then select OK.

Print will print the current screen. If you have a printer other than an Epson, you must copy its driver to the *Ports of Call* disk and install it using the Prefer-

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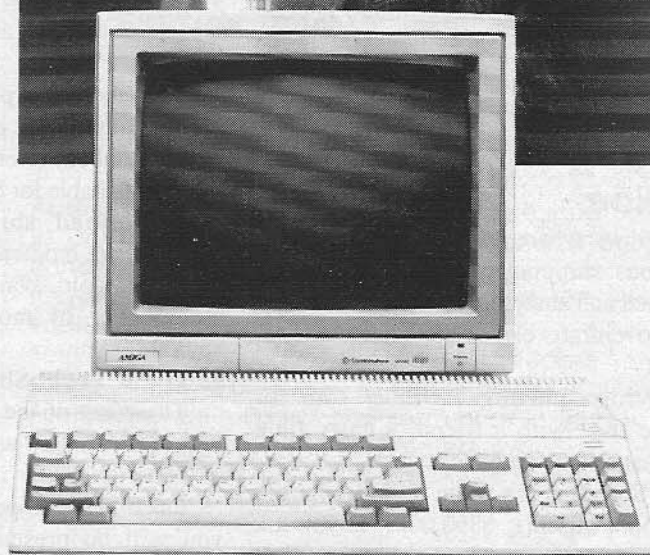
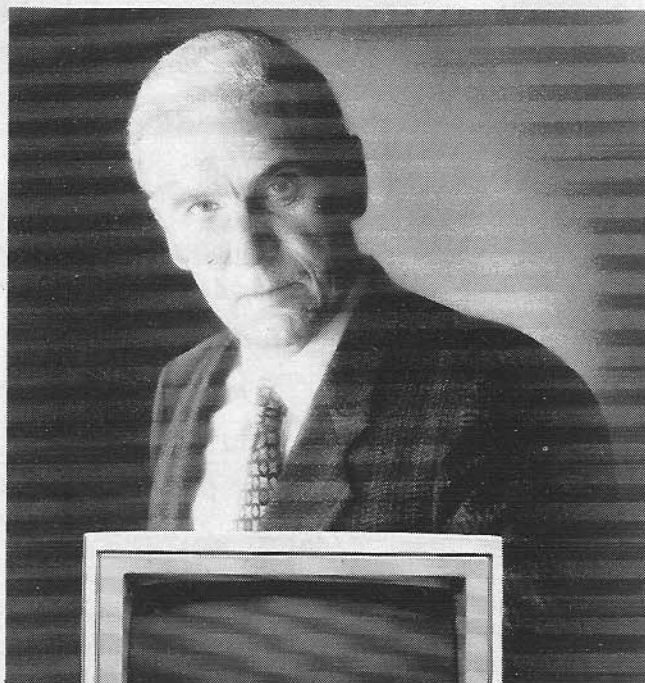
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Postcode _____

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Signature _____ Expiry Date ____/____/____

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Commodore Business Machines.

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ences program. Consult the handbook which came with your Amiga for more information.

If necessary, you can abandon play by choosing Quit. Then a requestor will appear asking if you really want to do this for sure. Select OK to quit, CANCEL to resume play. Upon quitting the game, you will be shown which player has been most successful.

On the right of the screen there are three gadgets that allow you to attend to office matters and the like.

Globe

This allows each player to determine the location of his ships, the ship's route and the estimated time of arrival. This information may be viewed by rotating the GLOBE with the mouse button until the information that is relevant to you is visible.

Office

This is where all the paperwork of the various shipping corporations may be viewed and analysed. All bank mortgages and overdrafts can be applied for and repaid.

Whilst playing *Ports of Call* for some time with a friend, a nasty little message came onto the screen.

"Someone has taken a dip in the till. Amount missing: \$890,000." If you ask me this is a pretty big dip into the till. It recommends in the manual that you visit the office periodically to prevent theft. . . I thought they were talking about pencil sharpeners.

Ship broker

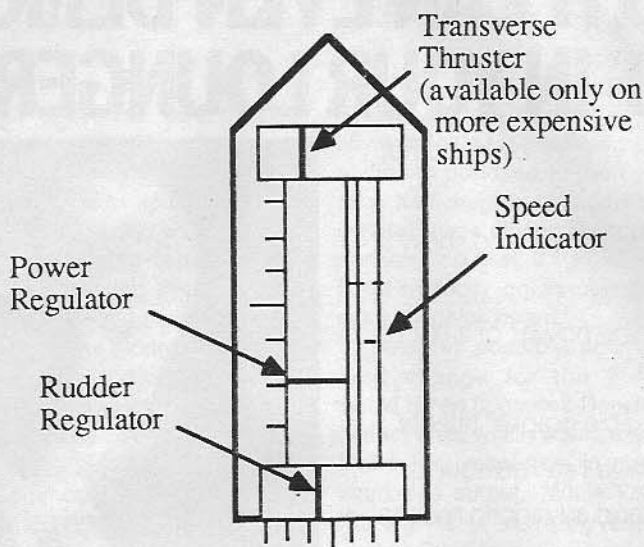
Upon entering the ship broker's office you must choose your floor:

1. Consulting.

Just as in real life this office is always closed.

2. Sellers market.

This is where you can trade in your old ships for cash, and just as in real



life you don't get nearly as much as you paid for them. Interestingly, the game works out what type of ship if any is in demand at the time and prices it accordingly.

3. Low cost ships.

These are grand old ships which are generally about twenty or so years old and are available for \$1,000,000 and up.

4. Pre-owned ships.

These are modern ships mostly about seven years old, available for a reasonable amount of money, just a mere \$5,000,000.

5. High Tech Ships.

These top of the line ships can cost up to \$60,000,000 and have a top speed of 23kts.

Once you have bought your ships you will be presented with a screen showing the captain's cabin.

The captain's log lists the last port

visited, cargo, profits, bank balance, ship condition and available fuel.

As you can see from the screen shot there are a few commands available to the captain. These range from refueling the ship to chartering and then loading the ship for a voyage.

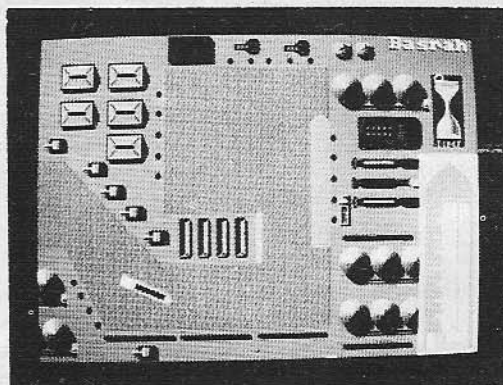
Once you have loaded the cargo and are ready to set off on the journey you must exit the port. This is almost the trickiest part of the game if you have chosen to have tugs assist you - or if you are in the unfortunate circumstance of not having enough money to pay for the

tugs' assistance. You must steer the huge ship out into safer waters, using the mouse and the ship icon on the right of the screen to control power and rudder.

One of the nicest features of this game is all the various random events that can occur during the course of play that the manual makes absolutely no mention of. These can include smuggling illegal items through customs as well as rescuing survivors of a shipwreck.

Ports of Call is a great game for a number of people over a few beers. I played it both by myself and with friends - the time I played with friends proved to be very entertaining, however, the time that I played by myself I found it to be almost boring.

In conclusion *Ports of Call* is brilliantly illustrated with an interesting theme, great for a multiplayer style of play. The accuracy of facts and the random occurrences during the game make this one from Aegis a sure fire winner. This is a great game, however, only if you have someone to play it with. I think that you would find it a touch tedious if you were to play it by yourself. It could be likened to playing *Monopoly*. ■



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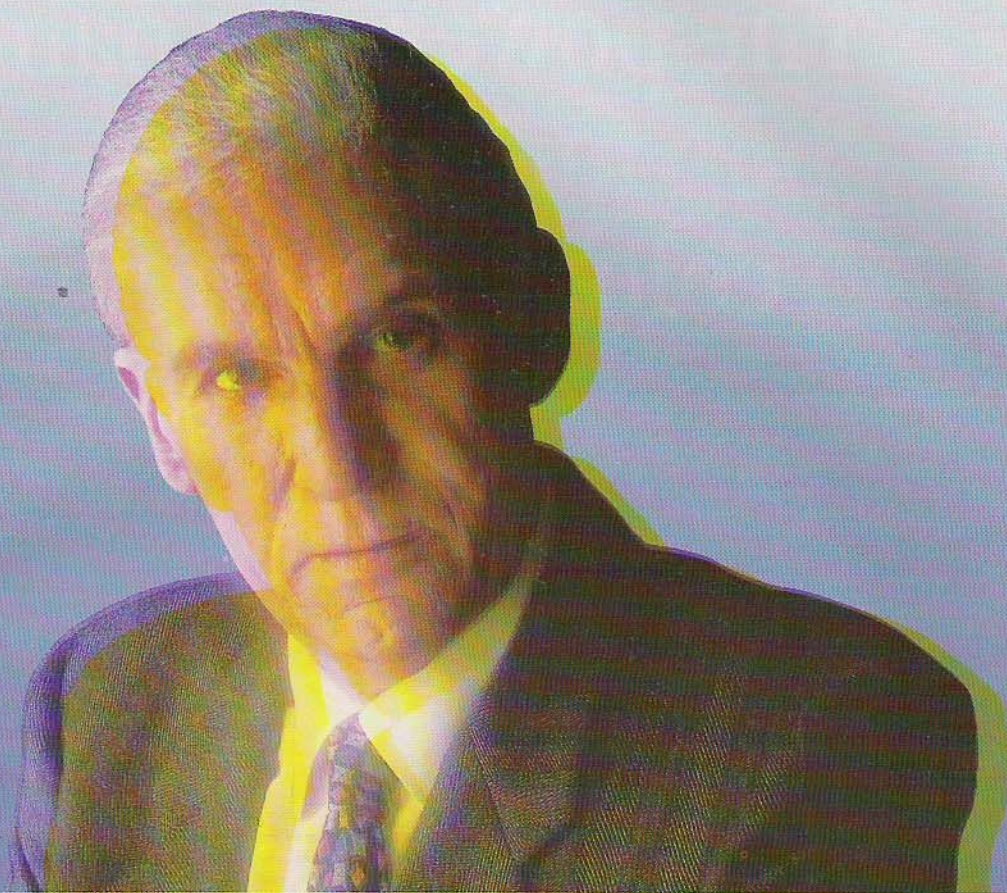
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GEOS

hints and tips

How to use the 1351 Mouse with Geos

The 1351 mouse features two modes of operation. In one, the mouse acts as a joystick and can be used with all software that requires one. In the other mode, proportional mode, the mouse uses a new technique to communicate movement to the controlling application software. This requires the software to know the mouse and how to read it. An example of this software is GEOS.

To use the mouse in proportional mode, a mouse driver is required. This is on the *Geos* 1.3 upgrade disk. Instructions are included with this disk.

To use the mouse in joystick mode, simply hold down the right mouse button when you plug the mouse in.

Protection of new Geos products

When you first run a GEOS application, if the application is copy-protected it will "key" itself to your original GEOS operating system disk. Once the application is "keyed in", you may make as many copies of the application disk as you like, but the copies will only work on systems booted from the same original GEOS disk (the one it is keyed to).

As an example, if you were to purchase a brand new *Writer's Workshop* package and try the *Writer's Workshop* disk in the store on the store's copy of *Geos*, the *Writer's Workshop* disk would not work on your *Geos* disk when you get it home. It would only ever work on the store's *Geos* disk.

Endless loop problems with Graphics Grabber, Geomerge and Geodex

When using *Graphics Grabber*, *Geomerge* or *Geodex*, problems can arise on a single drive when swapping disks. On some occasions *Geos* will request you to put in a particular disk. Even when this disk is inserted *Geos* will not believe you and continue to ask for you to insert the disk.

There is now a fix for this problem. The files to fix these problems are contained on the V1.3 upgrade disk.

GeoPrint cable problems with the MPS 1000

On the original *Geoprint* disk, the MPS 1000 driver will only work properly when the print command is given whilst the printer is turned off. There is now a fix to this problem. This is the new driver IBM 5152+ (GC 2). This driver is available on the *Geoprint* cable update disk.

Geos Printer Drivers

Below is a list of printer drivers available for Geos. All these files are available on the Printer Driver disk.

Driver Name on disk	Resolution	Version
Bluechip M128	80dpi	2.0
C.Itoh 8510	80dpi	2.0
C.Itoh 8510A	80dpi	2.0
Comm Compat	60dpi	2.0
Epson FX-80	80dpi	2.0
Epson IX-80	80dpi	2.0
Epson MX-80	60dpi	2.0
Gemini 10X	80dpi	2.0
HP Laserjet	75dpi	2.0
IBM 5152+	80dpi	2.0
ImageWriter	80dpi	2.0
Image Writer II	80dpi	2.0
MPS-801	60dpi	2.0
MPS-1000	60dpi	2.0
MPS 1200	80dpi	2.0
Oki 120	60dpi	2.0
Oki 120 NLQ	60dpi	2.0
Oki M1 92/93	72dpi	2.0
Okimate 10	60dpi	2.0
Okimate 20	80dpi	2.0
Olivetti PR2300	80dpi	2.0
Riteman C+	60dpi	2.0
Scribe	80dpi	2.0
Star NB-15	90dpi	2.0
Star NL-10(com)	80dpi	2.0
Star NX-10	80dpi	2.0
Star NX-10C	60dpi	2.0
Star SG-10/15	80dpi	2.0
1526 / MPS 802	80 dpi	2.0

Geos V1.3

The *Geos* files have now been updated to version 1.3. To update your files simply obtain the V1.3 upgrade disk and follow the instructions included.

Geos and daisywheel printers

When *Geos* prints it uses the graphics qualities of your dot matrix printer. This allows it to create the different fonts and graphics that *Geowrite* and *Geopaint* contain. Naturally, graphics are not possible on daisywheel printers. Thus *Geos* does not support daisywheel printers such as the DPS 1101.

Obtaining near letter quality

As stated above, when *Geos* prints, it uses the graphics qualities of your printer. It does not use the standard character set. For this reason, *Geos* cannot use NLQ or any other printer feature. These features are only available when your printer uses the standard character set.

GEOS - the alternative operating system for the C64

Part II - Making backups

IN MY APRIL article I introduced GEOS (again!, I hear you say), and one of the first tasks was to backup the original disk. The "correct" way to do this, as described in the manual, is to use the supplied BACKUP program. An alternative, faster and equally effective method is to use one of the many available disk backup utilities, but in either case, as the good book states, the copies so made are unbootable, resulting in everyday use of your precious original. And that of course, is highly undesirable.

I thought I had discovered a way to get around the problem when I found that using the COPY option from the DISK menu on Desktop produced a bootable copy of the master disk. I even did it twice to make sure.

However, as I quietly suspected to myself (I didn't even tell the family), it was too simple and too good to be true and in due course a letter arrived from a reader in Perth WA saying, you guessed it, that it didn't work, please help, and are you really telling the truth, anyway.

Not being one to tell fibs, except to stay out of trouble, I would like to reassure you all that it does work - at least it does on my system which is two 1571s, a C-128 (in 64 mode with an Epyx Fastload cartridge attached) and a Star printer with a Xetec Supergraphix interface hooked on.

Perhaps the trickery used by Berkeley Softworks is fooled by the 1571s, which, when operating in 1541 mode are close copies of, but not identical to, 1541 drives. My West Australian reader didn't say what system he was using, but if it was the standard C-64/1541 combination, that might explain why he got the book result and I didn't.

Not to worry though! To help everyone through their backup blues, I dug up

the following little gem from a book called *How to get the most out of GEOS* by Jim Oldfield Jr. and Tim Sickbert. The book is published by Midnite Software Gazette/Midnite Press and was reviewed in this magazine not so long ago.

First, make your back-up. The file "GEOS Kernal" must be the third file on the directory - it normally will be unless you have been fiddling around with said directory. This order of files aspect is a GEOS convention, and applies to any disk which you want to be a boot disk.

Type in and save the program, then run it from the Desktop with your GEOS backup in drive 8. NEVER run it on your original disk! If all goes well, you will have transformed your unbootable copy into a proper, bootable backup of your master disk.

```

10
rem"*****"
20 rem"***** EASY LOADER *"
30 rem"***** *****"
40 rem"***** R. ROLLINS *"
50 rem"***** *****"
60 rem"***** (c) 1986 ***"
70 rem"***** MIDNITE PRESS "
80 rem
" MIDNITE SOFTWARE GAZETTE "
90 rem"*****"
95 :
100 if ff=1 then sys 24576
110 print chr$(14)
120 poke 53280,0: poke 53281,15: poke
646,11
130 print"[CLR][5 CSR DN][2
SPC]Insert disk with GEOS boot file on
it."
140 print"[9 SPC]into drive number 8"
150 print"[CSR DN][9 SPC]Press any
key to continue"
160 poke 198,0

170 get a$: if a$= "" then 170
180 print"[3 CSR DN][16 SPC][RVS
ON] Please Wait [RVS OFF]"
190 open 15,8,15,"i0"
200 gosub 650
210 open 2,8,2,"#"
220 gosub 650
230 open 3,8,3,"geos boot"
240 input#15,en,em$,et$,es$
250 if en=62 then 570
260 if en>=20 then 670
270 close 3
280 print#15,"m-r"chr$(144)chr$(2)
290 get#15,ds$:if ds$= "" then ds$=
chr$(0)
300 ds=asc(ds$)
310 print#15,"m-r"chr$(148)chr$(2)
320 get#15,dc$:if dc$= "" then dc$=
chr$(0)
330 dc=asc(dc$)
340 print#15,"u1:"2;0;18;ds
350 gosub650
360 print#15,"b-p:"2;dc
370 gosub650
380 gosub720
390 for x= 1 to 3
400 gosub 740
410 print#15,"u1:2 0" track; sectr
420 gosub 650
430 next
440 print#15,"b-p:2 212"
450 gosub 650
460 print#2,chr$(162);
470 gosub 650
480 print#15,"u2:2 0" track; sectr
490 gosub 650
500 print"[CLR][5 CSR DN][12 SPC]
[RVS ON] PROGRAM COMPLETE
[RVS OFF]"
510 print"[CSR DN][13 SPC]Happy to
help"
520 print"[CSR DN][8 SPC]Press 'G' to
return to GEOS"
530 print"[CSR DN][10 SPC]any other
key to quit."

```


540 get rr\$: if rr\$= "" then 540	660 if en< 20 then return	790 close2: close3: close15
550 if rr\$<>"g" then 700	670 print"[CLR][7 CSR DN][7 SPC]	800 poke 53272,(peek(53272) and 15) or
560 goto 790	[RVS ON] A disk error has	192: poke648,48
570 print"[CLR][5 CSR DN][4 CSR	happened [RVS OFF]"	810 print"[CLR]"
RT]GEOS boot file is not on this	680 print" Please re-run program and try	820 open 15,8,15: open2,8,2,"geos
disk."	again"	boot,p,r":input#15,gg:close2:close15
580 print"[CSR DN][2 CSR RT]Please	690 print"[CSR DN][6 SPC]"en;cm\$"	830 if gg= 0 then 880
insert the disk with GEOS boot	"et\$" ";es\$	840 print"[CSR DN][4 CSR RT] Insert
590 print"[CSR DN][9 CSR RT]file on	700 close2: close3: close15	GEOS disk in drive 0."
it and try again"	710 end	850 print"[CSR DN][6 SPC]Hit any key
600 print"[CSR DN]Press q to quit, any	720 get#2,a\$: if a\$= "" then a\$= chr\$(0)	to continue...."
other to try again."	730 return	860 get a\$: if a\$= "" then 860
610 poke 198,0	740 gosub 720	870 goto 810
620 get a\$: if a\$= "" then 620	750 track=asc(a\$)	880 if ff=0 then ff= 1: load"geos
630 if a\$= "q" then 700	760 gosub 720	boot",8,1
640 close2: close3: close15: goto130	770 sectr=asc(a\$)	890 end
650 input#15,en, em\$, et\$, es\$	780 return	

Software reset

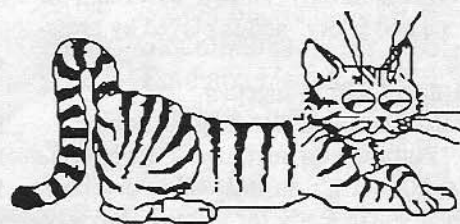
by Shadow of Ratt

This program is for those people who hate drilling holes in their key-boards affix reset buttons.

This program is a software reset to activate it type 'SYS679'

Pressing 't' (up arrow key) anytime after this, will result in reset! So be very careful.

Please note: Pressing 'π' (P1 key) will also reset the computer.



```

5 REM **** SHADOW OF RATT ****
10 FORA=679TO704
20 READB:C=C+B
30 POKEA,B
40 NEXT
50 IF C<>2846 THEN PRINT"ERROR IN DATA":STOP
60 PRINT"(DOWN)DATA TRANSFER COMPLETED"
70 PRINT"(DOWN)SAVING BASIC LOADER 't-BAS'"
80 SAVE"t-BAS",8
90 PRINT"(DOWN)SAVING M/C ROUTINE 't-679'"
100 POKE43,167:POKE44,002
110 POKE53,167:POKE54,002
120 POKE45,192:POKE46,002
130 POKE55,192:POKE56,002
140 SAVE"t-679",8,1
150 PRINT"(DOWN)RESETING COMPUTER....LOAD 't-679'"
160 SYS64738
200 DATA120,162,180,160,002,142,020,003
210 DATA140,021,003,024,096,165,197,201
220 DATA054,240,003,076,049,234,076,226
230 DATA252,000

```


Using Easy Script

Part 3

Due to popular demand Eric Holroyd's helpline for EasyScript is here again. This month he covers background music, moving around, linking long documents, printing linked documents, headers, footers and page numbers, and how to cut, paste and copy blocks of text.

I'm starting off this month with a little bit of fun in *Easy Script*. I never found out who programmed it, or even why, but some versions will play English patriotic music! It's the theme from Elgar's "Pomp and Circumstance", more commonly known as "Land of Hope and Glory" and is played by pressing :

F1 then CTRL/3 together

or Escape then CTRL/English pound

You can't do anything else whilst it's playing but it's an interesting diversion when you're ready for a break. Anyway, that's enough jollity so let's get down to some serious stuff. We'll start with panning.

Moving around

Panning is the term given to moving around the text continuously without holding down any keys. In other words you issue a command to move in a certain direction and *Easy Script* moves around the text for you.

An un-documented feature is the ability to pan around the screen with a joystick plugged into Port #2. This also handles well with the excellent Icontroller (reviewed in our May issue) and works in both Edit mode and in Output to Video mode. In the former you get full wrap-around, left / right / up / down and it's pretty quick too. In Output mode you get smooth left scrolling with right wrap-around. Pressing the fire-button will advance the text one line, and hold

it down to scan text till you find what you're looking for.

If you have a trackball you'll find that it will probably work too. Some joysticks may cause a problem if plugged in during the load, but once loaded it should be OK.

Panning using the keyboard is done with the following keys :

F1 - Shifted Vertical CRSR — Pan up

F1 - Vertical CRSR — Pan down

F1 - Shifted Horizontal CRSR — Pan left

F1 - Horizontal CRSR — Pan right

Run/Stop — Stop panning

Shift keys — Speed up panning

Spacebar — Toggles panning pause on/off

When you pause panning you can see the current cursor position as shown by the line and column number on the status line. It's a good idea to get used to watching the status line for this information at all times as I've found it to be a help in formatting text and estimating page breaks etc.

To move around the text under your control from the keyboard use :

Shifted Vertical CRSR — Move up

Vertical CRSR — Move down

Shifted Horizontal CRSR — Move left

Horizontal CRSR — Move right

CLR / HOME — Move to top of screen

Shifted CLR / HOME — Move to line 1, column 1

Return — Move to start of next line

Left arrow key — Move to end of previous line

CTRL / W — Move to 1st letter, next word

CTRL / Left arrow — Move to 1st letter, previous word

There are also three GO-TO commands to move to a specific location :

F1 / G / XX (Return) Go to line number XX

F1 / G / E (Return) Go to end of text

F1 / G / 999 (Return) Go to maximum line number (999)

The last one is useful if you're working on a very large document and wish to know how close to the maximum you are. It's best not to work right to the maximum but to make shorter files and link them together which we'll be doing in just a little while.

In addition to panning there's another way in which you can see text quickly

F1 / Spacebar Displays next screenfull

F1 / Shifted spacebar Displays previous screenfull

Linking long documents

Files made with *Easy Script* can hold several pages of text as you've seen from the 999 line maximum mentioned above. However, it's quite simple to make extremely large files from a series of smaller ones by linking them together. Use :

*lk:next file name (Return)

That command should be the last line in a file. Note that next file name is not enclosed in quotes and of course should

be spelled exactly the same as the file to which you're going to link. There's no limit to the number of files you can link together, except of course in actual disk space because the *lk command causes the computer to load "next file name" from the disk.

It's preferable that all files being linked together be on the same disk so that you can put it in the drive and forget it.

The printout command must include an instruction to print linked files. Use :

F1 / O / C / L (Output / Continuous / Linked)

You don't need to give any further commands as the linked files will load and print automatically.

Headers, footers and page numbers

It's often quite important to have the pages of your documents numbered in sequence and it's quite easy to do this in *Easy Script*. This feature uses the sign known variously as : hash, sharp, American pound. It's the symbol on the 3 key and is used reversed in this command. The secret is to first press F1 to go into Command Mode then press the shifted 3 key. Your page numbering command sequence could look like this :

* ft2:, Page # , (Note the * and # would be reversed)

Now, the command must contain two commas. They're important for positioning the footer text. The "Page #" in the above example would be "centred", whilst if we put the two commas after the words "Page #" they'd be at the left of the page bottom. If we put the two commas before the words they'd be printed at the bottom right of the page. Try it out for yourself and see.

You don't need the word "Page", only the reverse #, but you could try fancying it up with a dash before and after it like this - # - so that the page number will be printed with a dash either side of it. Other symbols like the < & > could be used for the same thing. Use your imagination on this one.

When using page numbering you can specify the starting number. If no number is specified then it naturally starts at 1. However, in the case of linked files it may be advisable to continue the sequence where the last file in the chain left off. You'd need to have Video-previewed it to know the ending page number of course, but you could then start the next file off with a command :

*p#xx (the # is not reversed. It's just shifted 3 key)

That command should be included in a print format line, or put on a line by itself before the header or footer that it's to work with.

Headers are useful in that you can print the same bit of text at the top of every page of your document, for instance:

*hdXX:, YOUR NAME , (Return)

would print your name at the head of every page XX lines between the heading and the main body of text. Only one heading may be used at a time, but you may change or delete a header at any point in the document by issuing a new header command. It must be on a line of its own in the same format as above. Don't forget that you can have it on the left, right or centred by positioning the two commas as discussed in the page numbering section above.

For a complicated heading on each new page with three different topics to be included you can use:

*hd3:topic 1,topic 2,topic 3 (Return)

That would print the heading 3 lines above the main text body, with topic 1 at the left, topic 2 in the center, and topic 3 at the right hand side of the page.

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Footings are formatted in exactly the same way as headers but with :

*ftXX:;this is a footer, (Return)

Which of course would print those words at centre bottom of the page XX number of lines down from the main body of text. The same rules apply as regards the two commas but you may only have one footer. In other words, if you've already put the Page Number at the foot of the page as shown above then you may not have another footer. You'll have to decide when setting up your document (a) if you want a header, (b) if you want a footer, and (c) do you want the pages numbered. Once you settle which two of those three you want then specify the format accordingly.

Here's another example of what you might do, including some printer control commands as well :

```
*hd2:;ESC/G ESC 4 MEMORANDUM
ESC/H ESC 5, ( Return )
*ft2:;ESC/F1/6/F1/2 PAGE #
ESC/F1/6/F1/0 ESC/7 ( Return )
```

The first line sets up Emphasized and Double Strike print for the heading, then cancels it after printing the word MEMORANDUM in the centre of the page. The second line sets up Elite pitch and prints PAGE #XX (don't forget to use F1 then shift/3 to get the reversed hash sign for this) at the bottom right hand side of the page. Again, the printer commands are cancelled after the line is printed plus the printer is reset with ESC/7 which, as you know, cancels all printer control commands already sent. Both header and footer (page number) will be two spaces from the text. Check through each command on each line to be sure that you know exactly what they're all doing.

When you set the text length at the top of your document you must remember to take the headers and footers into account. For instance, on paper length of pl66, with a header two lines above the text and a footer two lines below the text

you should set the text length to tl60 maximum. The difference between pl and tl must be at least the header parameter plus one and if you're using both header and footer then both parameters plus two.

In addition to all this you can specify margins that will only apply to headers and footers, very handy if you're printing them in pica print and the main text in elite print for example. (Obviously one lot of margin settings would be no good in that case.) It must also be used if you specify different margins anywhere within the text, eg if you indent paragraphs. It's done like this :

*hlXX sets left header & footer margins at column XX

*hrXX sets right header & footer margins at column XX

Note that the command must be on a separate line from the header/footer command and that the header and footer margins can't be set at different values.

Manipulating text blocks

Now we come to manipulating blocks of text from place to place in a document. Quite often in say, a letter, you may decide that the paragraph you've just written would have been better if you'd written it a bit earlier in the piece. In normal typing it means a complete re-typing job to do that but in Easy Script it's a breeze.

First of all you have to "range" a block. To do this, first put the cursor over the first character in the block of text you want to move. Then press :

F1 / R to indicate you're about to range a block
Use CRSR right & CRSR down keys to highlight text to be included
The "ranged" text is highlighted in reverse video
Press (Return) to commit the ranged block to memory

A memorized block will stay in

memory until you set a new range but to avoid any confusion it's best to use the memorized block straightaway. All you do now to shift the block in memory to it's new location is to put the cursor where you want the block to start, then :

F1 / X transfers a memorized block to a new location.

That's all there is to it! However, if you try to transfer a block too close to it's original location you may get an error message saying "cursor in range", in which case do an "interim transfer" by putting the ranged block somewhere else with F1/X first, then repeat the ranging operation, re-position the cursor to where you really want the block and complete the job with F1/X once again.

The block of ranged text in memory may also be copied to another place in your document by positioning the cursor where you want it copied to, then :

F1 / A copies a memorized block to an additional location.

That can be very useful if you want to repeat something like a couple of paragraphs of instructions on Page 3 and, as you've already gone to the trouble of typing it in on Page 1p, you can get the computer to do the work of repeating it for you.

Deleting lines

Another handy thing that you can do by "highlighting" text is to delete whole lines of text, or just as many characters as you need to. It's done by positioning the cursor over the first character as in "ranging" then :

F1 / D enters Delete mode
Use CRSR right to highlight unwanted text
Press return to delete highlighted text

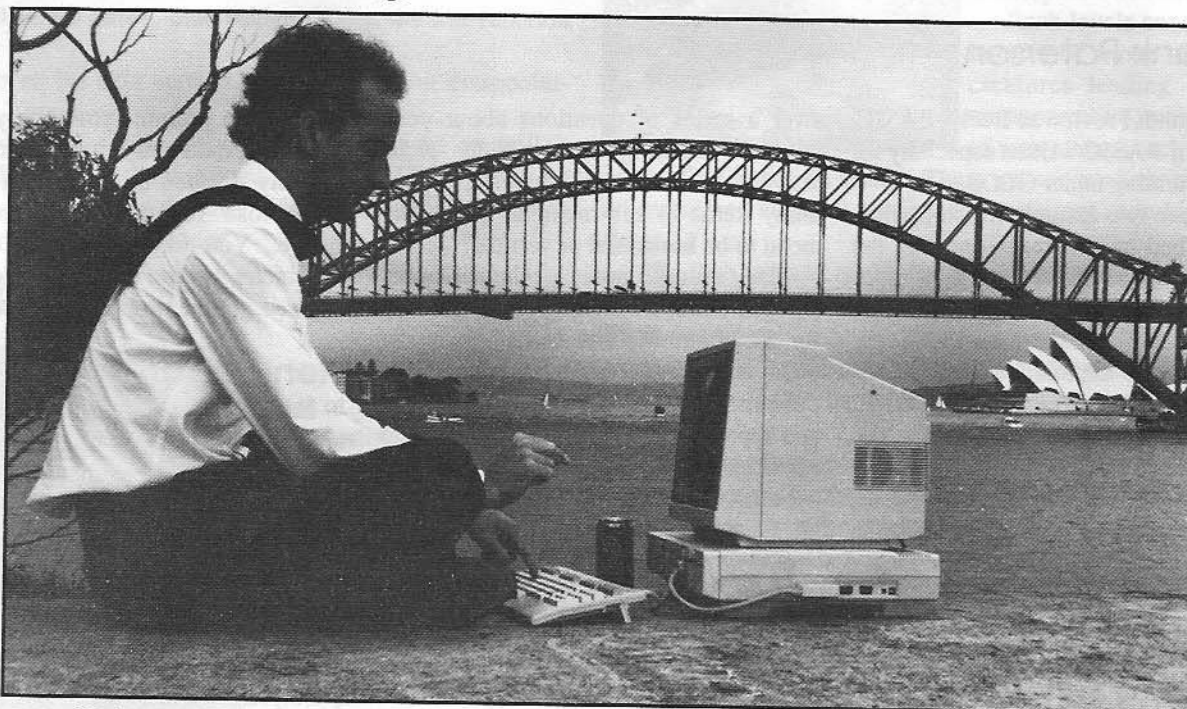
Text closes up automatically ready for further additions or printout.

That's plenty for this issue but there's more to come yet.

Address any author correspondence to P.O.Box 371, Miller, NSW 2168. ■

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More on BeckerBASIC

by Frank Paterson

Last month I reviewed BeckerBASIC, a version of BASIC written especially for the C-64 running under GEOS.

There are two features which particularly grabbed my interest: one was the structured nature of the language, especially the PASCAL-like PROCEDURE function. I'm no expert on PASCAL, but it seemed to me that the BeckerBASIC implementation of PROCEDURES was very powerful and complete. You could write a PROCEDURE, which is like a subroutine in ordinary BASIC, give it a name and save it to disk; then you could call it by name and it would be read from the disk and executed, which is something that BASIC cannot do with its GOSUBS and RETURNS.

That adds up to a very powerful feature, giving the programmer the ability to write complex and large programs which are far in excess of the machine's ability to store in RAM. The code is easily annotated and is, by its very nature, far more readable than its BASIC 2 equivalent.

Drop down menu construction set

But I digress. I didn't play with structured programming and PROCEDURES, but instead experimented with the second item of my interest in BeckerBASIC, the Drop Down Menu Construction Set. This is not a function or statement in BeckerBASIC, but rather a utility which makes it simple and easy to create customised, GEOS-like menu systems.

It assumes that you have already worked out what your menu structure will look like, eg that there will be five items to choose from, then three further choices in the first item, four in the second, etc. Just like the GEOS Desktop.

In essence, all you have to do is an-

swer a series of questions about your proposed menu system, such as "How many items in the main menu?", "How many items in sub-menu 1?", "Is the menu to be horizontal or vertical?", etc.

Easy up until now . . . the tricky bit is when you're asked to give coordinates for the beginning and end of the main menu and then for each sub-menu. It is this process which determines the layout and appearance of the menu system. You can't really get this right without a bit of experimentation, but more on this in a minute.

Once you have the above step all squared away, you are asked for the text which is to appear in each menu item. However, there is some interaction here, as the start and finish co-ordinates of the menus will depend on how long the text is in each item within a menu.

When you have all that sorted out, and it's not that hard - it's just hard to explain, you may then try out your menu system. If you've given the program reasonable coordinates, your menu system will look just like those you see in GEOS, which will give your program a very polished and professional appearance. You can then give your menu a name and save it to disk.

A draw-back of the DDM Construction Set is that if you don't like what you've done, you have to go back and start again - there is no provision for editing a completed menu system, which is a real drag and forces the aforementioned experimentation.

To minimise the pain and maximise the gain, I suggest that you write everything down as you go, so that you can accurately repeat your inputs on subsequent re-runs through the program, varying only those coordinates which you think may be wrong. At each question,

the program prompts you with your old answer, so data entry on re-tries is considerably speeded up - you need re-type only those responses you wish to change. You may find that a sketch of your menu system on graph paper will help you get the proportions right.

Menu address

Each menu system is assigned an address in memory (it's one of the questions you answer), so that you can call up a specific menu by its address at an appropriate time in the program. There is a special BeckerBASIC word, MENU-CODE, which works out which sub-menu item has been clicked and directs the program accordingly. It is delightfully simple:-

MENUCODE has an argument, from 0 to 10. eg MC = MENU-CODE (0), MD = MENU-CODE (1), etc.

If the argument is (0), then MENU-CODE returns the number of the item being clicked on the main menu. If the argument is (1), then it returns the number of the item being clicked on sub-menu 1, and so on. Response to a menu can be programmed as follows (using the ON GOSUB structure, another feature of BeckerBASIC):-

```
100 ON MENU-CODE (0) GOSUB
1000, 2000, 3000, ....ETC.
.
.
.
1000 ON MENU-CODE (1) GOSUB
1100, 1200, 1300 ....ETC.
2000 ON MENU-CODE (2) GOSUB
2100, 2200, 2300 ....ETC.
3000 ON MENU-CODE (3) GOSUB
3100, 3200, 3300 ....ETC.
```

Line 100 tests to see which item on

Great Circle Navigation

by Graham Winterflood



the main menu has been clicked and branches to 1000, 2000 or 3000 so that the correct sub-menu can be examined.

Lines 1000, 2000 and 3000 are selected by line 100. They then check to see which items in the first, second or third sub-menus were clicked, and direct control to appropriate parts of the program at 1100, 1200, 2100, 2300, etc.

There are many, many interesting investigations of BeckerBASIC to be done.

However there is a disadvantage present here, and that is that any program written in BeckerBASIC must have Becker's special interpreter present to make it run. That is to say, if you don't own a BeckerBASIC package, you're out of the running as far as printed programs in a magazine are concerned.

There is a way around this last little problem. To give programmers the ability to distribute BeckerBASIC applications, the publishers license owners of the system to include a run-only BeckerBASIC interpreter on the distribution disk. This makes it possible for us to publish BeckerBASIC programs on the *Review's* Disk Magazine ie, both the program and the special interpreter would be included. The program would then be available to anyone, not just owners of the BeckerBASIC system.

I suppose that puts the onus on yours truly to come up with something interesting, and that I'll try to do. It also gives you readers a chance to do your thing and maybe get published. I'm sure the Editor would welcome any contributions on this interesting package.

If you're interested in GEOS, interested in programming and want to marry the two, BeckerBASIC has to be the way to go. Great stuff! ■

Have you ever wanted to know how far it is from London to Sydney, or Perth to Tokyo? This program enables you to enter the co-ordinates of any two places on earth, and the Great Circle Track and Distance from the first to the second is calculated for you.

The Great Circle Track is the direction to proceed from the starting point to the destination based on a 360 degree compass and the Distance is the shortest distance between any two points on the earth's surface following the curvature of the earth.

This program will be useful to anyone with an interest in navigation, for example sailors and aviators. Ham radio operators will be able to calculate the distance to their furthest contacts. The program should work on any Commodore computer and with minor modification to syntax rules, it should work on any computer with Basic as the language. For example I have used it on Casio, Sharp and Tandy computers.

The calculations are done using Spherical Trigonometry equations, and as a result the distances calculated are based on a perfect sphere. The earth however is not a perfect sphere but is slightly flat at the poles (known as an oblate spheroid). The resultant error however is not large, and comparisons done with navigation computers on actual aircraft show that a difference of four miles in several thousand would be the maximum error expected - about thirty seconds' flight time in a jet aircraft.

Type in and save the program, taking special care when entering the formula. Note that some of the equations actually start with a minus sign. When you run the program, the first prompt is for the

magnetic variation.

The variation is the difference between true north and magnetic north, and is different at different points on the earth. This occurs because the north and south magnetic poles are not at the same positions as the true poles, therefore when using a magnetic compass for direction, the variation between the two has to be taken into account.

Variation is the number of degrees either East or West of true north, so input an E or W followed by the number of degrees, such as E12 or W3. If you don't

PLACE	CO-ORDINATES		VARIATION
Adelaide	S34569	E138314	E7
Brisbane	S27221	E153083	E11
Canberra	S35171	E149119	E12
Darwin	S12241	E130521	E3
Hobart	S42509	E147315	E14
Melbourne	S37397	E144505	E11
Perth	S31568	E115575	W3
Sydney	S33567	E151108	E12

know the variation just hit return and the calculated track will be in degrees True.

The entry of latitude and longitude follows a similar pattern, with South, North, East or West first, then the actual co-ordinates. I have written the program to accept data in the same manner as Omega and Inertial navigation systems on aircraft, for the benefit of those with an interest in aviation. The position of the first point is known as Waypoint One, and the second point as Waypoint Two.

Following convention, the co-ordinates are not entered as degrees, minutes, and seconds, but as degrees, minutes and decimals of minutes. Hence a latitude of 33 degrees 56 minutes and 42 seconds becomes 33 degrees 56.7 min-

utes. This would be entered then as S33567 if it were south latitude.

Note that no decimal points are entered as the program does that for you. An East longitude of 151 degrees 10 minutes and 18 seconds would be entered as E151103, the 18 seconds being equal to .3 of a minute. The co-ordinates of airports and reporting points on air navigation charts are shown in this manner.

A position which is a round number of degrees will need the trailing zeroes to be entered. For example One degree North would be N01000 and Fifteen degrees West would be W15000. The program prompts for Waypoint 1 Latitude first then Longitude followed by Waypoint 2 Latitude then Longitude.

Within a few seconds the Track and Distance is calculated with distance being displayed in Nautical miles, Statute miles and Kilometers to the nearest two decimal places. Below is a list of co-ordinates for all capital city airports in Australia with the magnetic variation for each. Approximate positions for anywhere on earth can be obtained from any good quality atlas.

As a cross check that you have typed the program correctly, the distance from Sydney to Darwin should be 1703 NM.

An interesting track to check is from London to Sydney. You will find that the direct track is to the northeast from London up over Russia. This can be verified by holding a piece of string between the two places on a globe of the world.

```

10 rem-----
20 rem
30 rem  great circle navigation
40 rem
50 rem          by
60 rem
70 rem  graham winterflood
80 rem
90 rem-----
100 printchr$(147)
110 print"great circle navigation"
120 print
130 print"enter magnetic variation as east or west"
140 print"for example 'e12'"
150 print"enter latitude first then longitude"
160 print"for example 's33567' - 'e151108'"
170 print"( no decimals )"
180 pi=3.14159265
190 print
200 dm$="degrees mag."
210 input"variation";v$:ifv$=""thendm$="degrees true"
220 v=val(mid$(v$,2))
230 ifleft$(v$,1)="e"thenv=v*-1
240 input"waypoint 1 lat";r$
250 input"waypoint 1 long";q$
260 input"waypoint 2 lat";g$
270 input"waypoint 2 long";h$
280 k=180/pi
290 x$=r$:gosub510:r=a:x$=q$:gosub510:q=a
300 x$=g$:gosub510:g=a:x$=h$:gosub510:h=a
310 d=sin(r)*sin(g)+cos(r)*cos(g)*cos(h-q)
320 d=-atn(d/sqr(-d*d+1))+pi/2
330 s=(sin(g)-sin(r)*cos(d))/sin(d)/cos(r)
340 s=-atn(s/sqr(-s*s+1))+pi/2
350 ifsin(h-q)<0thens=2*pi-s
360 s=s*k
370 nm=d*k*60:sm=nm*76/66:km=nm*1.8532
380 nm=(int(nm*100+.5))/100
390 sm=(int(sm*100+.5))/100
400 km=(int(km*100+.5))/100
410 t=s+v:ift<0thent=t+360
420 t=int(t+.5)
430 tk$=str$(t):tk$=mid$(tk$,2)
440 iflen(tk$)<>3thentk$="0"+tk$:goto440
450 print
460 print"track-----"tk$ "dm$
470 print"distance---"nm"nautical miles"
480 print"distance---"sm"statute miles"
490 print"distance---"km"kilometres"
500 end
510 v$=left$(x$,1):u$=mid$(x$,2)
520 a=val(u$)/1000:b=(a-int(a))/.6
530 a=(int(a)+b)/k
540 ifv$="s"thena=a*-1
550 ifv$="w"thena=a*-1
560 return

ready.

```

One word of caution, it is possible to get a division by zero error when using the program. This can occur when one of the positions happens to be on the equator. As we all know the SIN of zero degrees is zero (don't we), and this may re-

sult in the aforesaid error message. The solution is to trick the computer by nominating a position one mile from the equator, then mentally adding one mile to your answer. ■

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More experimenting with Commodore's printer driver on the C128

by Frank Paterson

IN MY APRIL column, I discussed some of the problems I encountered in making *WordStar*, an "industry-standard" program, work on my C128 system which uses a non-Commodore printer and a Xetec Super Graphix Interface. The essence of the problem was that in Commodore's implementation of CPM, ASCII translation was garbling the output on my non-Commodore printer and inserting extra linefeeds.

Last month we spent some time modifying the CPM printer driver to by-pass the translation routine and to control the linefeeds and the result was relatively successful.

I say "relatively" because one of my aims was to set things up so that I don't have to change DIP switches on my printer or interface as I go from program to program. My modifications to the printer driver didn't quite achieve that.

As I said last month, the linefeed control measures I introduced were so successful that no line-feeds at all were getting to the printer, and I had to set the local line-feed switch on the printer to "on" to prevent all the output from being printed on one line. I have already set up all my other programs to work with that switch off, so my goal of "standardisation" was somewhat compromised. Also, the line-feeds still weren't properly controlled when using the Near Letter Quality setting on the Super Graphix, though in draft mode everything was OK.

I thought at the time of writing last month that the problem lay in the ISSCR routine in the printer driver, and a little investigation proved that to be correct. Refer to Listing One, which is a

partial listing of the modified printer driver.

Line 001B tests to see if the character to be printed is a Carriage Return (CR), and if it is the program branches off the the ISSCR routine at line 0034. Here 80 hex, or 128 decimal, is added to the ASCII value of the CR prior to exiting the CONVERT routine back to the system and off to be printed. This is an interesting point of our discussion. The original character in the accumulator was a CR or CHR\$(13) in decimal. This ISSCR routine converts that to CHR\$(141) decimal by adding 128. Real ASCII has a maximum CHR\$ value of 127, so it is quite conceivable that the CHR\$(141) doesn't fit into the ASCII scheme of things.

As an experiment, I changed the ADI 80H in line 0034 to ADI 00H, that is "add zero to the accumulator". This has the dual effects of modifying the ISSCR routine so as not to alter the CHR\$ value of the CR in the accumulator and also of not altering the length of the CONVERT routine as a whole, which is explained last month, as important.

Again, the acid test . . . After creating yet another new CPM+.SYS file incorporating the modifications just discussed, Presto!! Success!! The printer works just fine in both draft and NLQ modes with the line-feed switch set OFF, which is what I set out to do in this article today, and which I should have discovered about two months ago. (And the rest!!).

I should say here that though I glibly mention from time to time that another CPM+.SYS file gets created, that in itself cannot be done without the right

software or an incredible amount of knowledge and patience. I use the former . . . the right software provided by Digital Research and supported by their manuals in the CPM development kit marketed by Commodore. Each run to produce a CPM+.SYS file takes about fifteen minutes. Using *WordStar* (surprise, surprise!) you modify the CXPRINTE.ASM file, as we've discussed, and then copy the result to a system generator work disk, along with 24 (yes, twenty four) other files. After typing the obvious command

```
GET CONSOLE INPUT FROM FILE  
CXSYS.GET [SYSTEM]
```

a new operating system is generated, as I say in about fifteen minutes. You can then boot that up and test it.

I'm sort of slinging off at the complexity of all this, but when you think about it, that's not really fair because we are delving into the innermost parts of the workings of the computer . . . the bits and bytes that teams of engineers spend years getting right. We are fortunate that we have a system that lends itself to experimentation. It would be naive to seriously expect it to be simple.

And while I'm on this tangent of experimentation . . . When you think about it, the 128 must be about the best hacker's machine available. Here's a neat package with three computers in one - a Commodore 64, which needs no introduction; a C128 with a wonderfully enhanced BASIC with graphics and sound, an 80 column screen, and a fair amount of memory; on top of that you also get a Z80 based computer with a user-

adjustable operating system, heaps of software and ready access to cluey people who know all about it and can offer advice.

Yes, the 8 bit technology is old, but how many owners of Apple Macs and Amigas and PCs actually hack away at machine-level as we've been doing? Not many, I'll bet. All the Amiga and Mac owners I've met run great programs

which draw lots of ooh's and aah's, and rightly so, but the machines are just too complex for them to "get into". I suppose it all boils down to what you want to do. If you want to fiddle about with the MACHINE and you're not an engineer, then something like a 128 is the go. If you want to fiddle about with spectacular PROGRAMS or indulge in 32 bit hyperbole, then going upmarket is

the thing to do. But it seems to me to be beyond the reach and understanding of the average owner.

I'm glad I got that off my chest . . .
Back to the subject!

With all the modifications to CPM+, I can now produce hard copy in either draft quality or NLQ straight from the keyboard by using the CPM command TYPE or by re-directing console output to the printer by using CONTROL p or by using a proprietary program such as WordStar. I can hear some people saying "Whoop-de-doo, why bother when there are so many good programs around which take advantage of the 128 operating system instead of fighting it?"

Well, there are three answers. The first is based on a personal need . . . I needed it to work to save ME a lot of work in converting existing wordprocessing files done on *WordStar*.

The second is that in doing all this, I have made my system less "Commodore specific" . . . it now produces standard ASCII output ready for a standard ASCII printer, and is therefore better equipped to run the vast majority of CPM software.

The third is probably the most important. I did it because it was there to be done . . . the hacker's equivalent to mountain climbing.

For what other reason would you own a computer?!! ■

Listing 1

This is the effective part of the CONVERT routine in the printer driver, as modified last month. To complete the modifications described this month, change line 0034 from ADI 80H to ADI 00H.

```

CONVERT:
01B FE0D      CPI      CR
               JRZ      IS$CR
01D+2815      DB        28H,IS$CR-$-1
               NOT$CR:
01F FE0A      CPI      0AH          ;TEST FOR LFEED
               JRZ      UPPER$SYMBOLS ;UPPER$SYMBOLS CONVERTED TO STRIP LFEEDS
021+2814      DB        28H,UPPER$SYMBOLS-$-1
023 FE80      CPI      80H          ;BYPASSES ALL FOLLOWING ROUTINES AND
025 DB        RC                  ;IS EFFECTIVELY A RET
               ; IF IT IS A LOWER CASE LETTER SUBTRACT 20H

026 FE7B      CPI      'Z'+1
               JRNC     LOWER$SYMBOLS
02B+3003      DB        30H,LOWER$SYMBOLS-$-1
02A D620      SUI      20H
02C C9        RET

;
;
LOWER$SYMBOLS:
02D C660      ADI      60H
02F C9        RET

;
;
MAKE$UPPER$CASE:
030 FE5B      CPI      'Z'+1
               JRNC     UPPER$SYMBOLS
032+3003      DB        30H,UPPER$SYMBOLS-$-1
               IS$CR:
034 C680      ADI      80H
036 C9        RET

;
;
UPPER$SYMBOLS:
037 3E00      MVI      A,00H          ;ROUTINE CONVERTED TO STRIP L/FEEDS
039 C9        RET                  ;AND EXIT FROM 'CONVERT'

```


More high-res graphics on the 128's 80 column screen

by Frank Paterson

Last month we discussed creating high resolution graphics on the 8563 chip's 80-column screen. I presented two programs; one a machine code routine to enable 8563 graphics, clear the screen, set and clear points on the screen and when all is finished, to return to text mode. The other was a simple BASIC program which calculated mathematical curves and then called on the first program to actually plot them point-by-point.

This month I would like to show you an easier way to get some shapes on the 8563 screen by first plotting them on the VIC screen and then using another machine code routine to copy them to the 80 column screen.

We discussed last month that the handy BASIC 7 graphics commands are not useable on the 8563 screen and that consequently we must decide by other long-hand means, such as last month's Program 2, just which points must be set and which cleared so that a shape can be drawn. Wouldn't it be nice if we could streamline the process and draw those same shapes with commands like CIRCLE, BOX, DRAW, PLOT, PAINT, etc.

Well we can, with some limitations, but first a little bit of theory.

The 128's VIC screen - the gray one with the green border - is a 40 column by 25 row screen, giving a total maximum number of displayed characters of 1000. We discussed last month that a character was formed by an 8x8 matrix of dots called pixels. There are eight bits in a byte, so it can be seen that the matrix can be formed by a stack of eight bytes one on top of the other. Figure 1 should help. (Remember that computers start counting from zero, so the eight bits in a byte would be numbered 0 to 7. Also,

the bits in a byte are identified by counting from right to left.)

BIT No.							
7	6	5	4	3	2	1	0
-	-	-	1	1	-	-	0
-	-	1	1	1	1	-	1
-	1	1	-	-	1	1	2
-	1	1	1	1	1	1	3
-	1	1	-	-	1	1	4
-	1	1	-	-	1	1	5
-	1	1	-	-	1	1	6
-	-	-	-	-	-	-	7

Figure 1

Remember that bits can be either on (set), with a value of one, or off (reset) with a value of 0. The value of a bit within a byte is 2 raised to the power of the bit number. So the value of bit number three in any byte is 2^3 which is 8. The value of bit number four is 2^4 , or 16. The value of bit number 0 is 2^0 , which is 1. (The value of ANY number raised to the power of 0 is 1.)

To find the value of a byte, we add together the values of any bits which are set, i.e. which contain a "1".

Let's go to Figure 1. There are eight bytes numbered 0 to 7, stacked one atop the other. Those bits that are set are identified by a "1" - that is, they are "on". Those that are reset (off) are shown by minus signs. (Normally they would be shown by a "0", but I have used minus signs on this occasion because it helps to make the pattern formed by the set bits much clearer.) In the right area of memory, set bits cause a screen pixel to be lit, while reset bits cause a pixel to remain unlit. See how the pattern of set bits forms a capital "A". This is the basis of all graphics

displays and it's called "bit mapping".

Displaying alphanumeric characters is a special form of bit-mapping. The technique can be used in a general sense to display anything on the screen. Briefly, all that has to be done is to organise the screen so that each point on the screen is represented by a bit of memory. A point will be lit if its corresponding bit is set. It will be unlit if its bit is reset (to zero).

The bits are arranged into groups of eight, each group being represented by a byte of memory. The bytes which contain all these bits must then be organised into some sort of order or pattern; the pattern may change from computer to computer or from chip to chip within a computer, and are known as "bit maps". The two chips which we're working with in the C-128, the VIC chip and the 8563 Video Display Controller, do indeed map their displays differently.

With the VIC chip, consecutive bytes are stacked one on top of the other as we've just discussed. The first character cell on the screen (ie the top left corner and according to computer convention, numbered "0") contains bytes zero to seven. The next cell to the right, cell 1, contains bytes eight to fifteen and the one after that, cell 2, contains bytes 16 to 23 and so on up to cell 39 which is the last cell in the top line. It contains bytes 312 to 319. Cell 40 begins the second row with byte numbers 320 to 327, followed by cell 41 with bytes 328 to 335 and so on until all 1000 cells have been mapped.

1000 cells is the product of 40 columns by 25 rows, the standard VIC screen. At eight bytes per cell, it is easy to see that a total of 8000 bytes are needed to map this screen.

Figure 2 shows the general layout of the VIC screen, starting at the "home" position at the top left corner.

cell 0	cell 1	cell 2.....	cell 39
byte 0	byte 8	byte 16.....	byte 312
byte 1	byte 9	byte 17.....	byte 313
byte 2	byte 10	byte 18.....	byte 314
byte 3	byte 11	byte 19.....	byte 315
byte 4	byte 12	byte 20.....	byte 316
byte 5	byte 13	byte 21.....	byte 317
byte 6	byte 14	byte 22.....	byte 318
byte 7	byte 15	byte 23.....	byte 319
cell 40	cell 41	cell 42.....	cell 79
byte 320	byte 328	byte 336.....	byte 632
byte 321	byte 329	byte 337.....	byte 633
byte 322	byte 330	byte 338.....	byte 634
byte 323	byte 331	byte 339.....	byte 635
byte 324	byte 332	byte 340.....	byte 636
byte 325	byte 333	byte 341.....	byte 637
byte 326	byte 334	byte 342.....	byte 638
byte 327	byte 335	byte 343.....	byte 639

and so on up to cell 999 at the bottom right corner of the screen.

Figure 2.

A representation of the first two lines of a VIC screen, showing how bytes are arranged cell-by-cell.



cell 0	cell 1	cell 2	cell 79
byte 0	byte 1	byte 2	byte 79
byte 80	byte 81	byte 82.....	byte 159
byte 160	byte 161	byte 162.....	byte 239
byte 240	byte 241	byte 242.....	byte 319
byte 320	byte 321	byte 322.....	byte 399
byte 400	byte 401	byte 402.....	byte 479
byte 480	byte 481	byte 482.....	byte 559
byte 560	byte 561	byte 562.....	byte 639
cell 80	cell 81	cell 92	cell 159
byte 670	byte 671	byte 672.....	byte 749
byte 750	byte 751	byte 752.....	byte 829
byte 830	byte 831	byte 832.....	byte 909
byte 910	byte 911	byte 912.....	byte 989
byte 990	byte 991	byte 992.....	byte 1069
byte1070	byte1072	byte1073.....	byte 1149
byte1150	byte1151	byte1152.....	byte 1229
byte1230	byte1231	byte1232.....	byte 639

and so on up to cell 1999 at the bottom right of the screen.

Figure 3.

A representation of the first two lines of the 8563 screen, showing how bytes are arranged consecutively across the screen.

On the other hand, the 80 column screen is mapped much more simply.

Byte 0 is at the top left of the screen, at the top of cell 0. Byte 1 is immediately to the right, at the top of the cell 1 and byte 2 is to the right again, at the top of cell 2 and so on to byte 79 which is on top of the last cell in the row. Byte 80 becomes the second byte of cell 0 at the top left of the screen, 81 is the second byte of cell 1 and so on to byte 159, the second byte of cell 79. Wrap around the screen again and byte 160 is the third byte of cell 0, 161 is the third for cell 1, etc.

Repeating this process a total of eight times forms cells stacked eight bytes high, but within a cell, instead of being numbered consecutively, bytes are 80 apart. This is harder for generating characters, but much, much easier for bit mapping a graphics screen.

Figure 3 shows the layout of the 8563 80 column screen, and comparison with figure 2 should help to resolve any confusion about the difference between the two maps.

To copy a hi-res screen from the VIC's format to the 8563's, we need a program that will read the VIC's memory according to the stacked byte pattern in Figure 2 and transfer it to the 8563's memory in the consecutive byte pattern shown in Figure 3. It will also have to account for there being 40 columns on the screen being read and 80 columns on the screen being written to.

Here's what has to be done:-

- 1 Start at the beginning of both the VIC and 8563 bit maps.
- 2 Get a VIC bit map byte.
- 3 Store it in the 8563 bit map.
- 4 Increment the VIC pointer 8 times so that the program is looking at the

next byte to the right on the same line. No need to increment the 8563 pointer; it is done automatically after a write operation.

- 5 Repeat 2, 3 and 4 another 39 times.

At this point, one row of bytes (a scan line or raster line) has been transferred from VIC to 8563.

The VIC pointer is now looking at byte 312, and the next byte to be read is byte 1, so

- 6 After each raster scan line has been transferred, subtract 311 from the VIC pointer. Do this seven times. On the eighth time, increment the pointer by one.

When it's due the eighth time, the program will be looking at the last byte of the last row in the rightmost cell on the screen, eg byte 319 in figure 2. Now we need to advance to the next row of

cells. In our example, the next byte to look at is byte 320, so you can see that we have to increment the VIC pointer by one to get to the first byte in the next character cell.

● **Step 7** After transferring 40 bytes (one scan line) from VIC to 8563, write 40 blank bytes to 8563. This gets the 8563 pointer to the beginning of its next scan line, and keeps it in step with the VIC pointer.

● **Step 8** Repeat the process a total of 25 times, once for each character row.

Program 1 performs these tasks. As discussed last month, programming the 8563 chip in BASIC is not really on and so machine code is used instead. Enter the program using the monitor, beginning at address \$1800. When you've finished, and before executing it, save it with .S "FILENAME", 08, 1800, 18DF <RETURN> from within the monitor.

Briefly, here's how it works.

The first instruction jumps to a sub-routine to clear the 8563 bit map screen.

Instructions at \$1803 to \$1809 select bit map mode on the 8563. The sub-routine at \$1877 is frequently used to write to an 8563 register. If entered two bytes earlier at \$1875, it will write to 8563 RAM.

Locations \$180A to \$181A define the 16 bit addresses for the start of both the VIC and 8563 screens.

\$1820 to \$1827 initialise variables \$B1, \$9B, \$9C and \$FE. \$9B is the counter for the number of character rows. \$9C is the counter for the number of raster lines processed within a row of cells. \$FE is the VIC column counter.

● **Step 1** of the algorithm is done by instructions at \$180A to \$181A.

● **Step 2** is contained in \$182D to \$1830.

● **Step 3** is performed by the JSR at \$1831 and the sub-routine at \$1875 to \$1882.

● **Step 4** is done at \$1883 to \$188E.

● **Step 5**, which says to do steps 2, 3 and 4 thirty nine times, is controlled by the VIC column counter, which is decremented each time around at \$183A.

● **Step 6** is performed in the sub-routine at \$189B.

● **Step 7** lies between \$188F and \$1899.

● The last step, **Step 8**, is performed by instructions \$186F to \$1872.

The RTS at \$1873 will return control to BASIC or to whatever program called this one as a sub-routine. Theoretically, you can substitute whatever branching instruction you like here, but unfortunately, the way this program was written, you are limited to two bytes of branching instructions. This is usually inadequate, so you will have to use the program "as is" as a sub-routine and be happy with the RTS, unless you wish to re-assemble or re-write the whole thing.

Using the program is very simple, but of course you need to have something on the VIC screen to copy.

Go into 40 column mode with ESCAPE X and if you're using a 1901 monitor, switch it to PAL. Enter a graphics mode, for example GRAPHIC 2,1. Now draw something on the screen using BASIC 7 graphics commands - how about a circle with CIRCLE 1, 160, 100, 50, 70 <RETURN>. Now return to 80 column mode with ESCAPE X and switch your 1901 back to RGB. Type SYS 6144 or SYS DEC("1800") and look at that!! The screen should clear and a copy of the circle you drew on the VIC screen should appear in white on black.

You don't have to mess around with changing from 80 column to 40 column and back, or with switching the monitor between RGB and PAL. Just stay in 80 column mode, open a graphics area with, say, GRAPHIC 1,1 and then type your graphics commands. The images will be drawn on the VIC screen, but in the background - you won't see them. At the READY prompt, do the above SYS to call the copy routine and you should see your screen clear, followed by a copy of the VIC image.

Notice that the image is somewhat squashed. This is because the 8563's pixels are only half as wide as the VIC's,

and since the program is copying pixel-for-pixel, the resultant image is only half as wide. The copy uses only the left side of the screen because no centering routine was written into Program 1.

The way it works at the moment, it reads the forty bytes across the top of the VIC screen, writes them to the 80 column screen, then writes forty blank bytes to make up the 80 columns. Then it moves down a row (of bytes, not characters) and repeats the process and so on until the whole screen has been copied - a total of 200 cycles.

You will also find that that after the 80 column graphic has been drawn, it will be spoiled at the top by some garbage as the computer attempts to return to BASIC and write READY. The corruption occurs because the 8563 chip has not been properly returned to text mode, and the character data in its RAM has been replaced with your graphics data, resulting in garbage as it tries to print text.

There are two ways out. The first is to reset, which clears BASIC so that any programs you may have written to be used in conjunction with Program 1 will be lost. The other way is STOP/RESTORE to reset the 8563 to text mode, followed by SYS DEC("CE0C") <RETURN>. You'll have to type blind because there is no character data in 8563 RAM - it was cleared out by the graphics routine you just used.

The SYS call to location CE0C calls the KERNEL routine which downloads character data from ROM to 8563 RAM, thus fully restoring the 8563's text mode. This method is not quite as simple as a reset, but has the advantage of not erasing any BASIC programs you might be fiddling with.

Program 2 is a short machine code routine which returns the computer to normal, using the second method above. Enter it using the monitor, commencing at location 0C06. To reset the 8563 and return the character set, just SYS DEC("0C06") or SYS 3078. You can get maximum convenience by re-defining a

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PROGRAM 1

function key and using it every time you want to reset back to text mode. Define a key as follows (I have used F5):-

KEY5, "SYS3078"+CHR\$(13)

You can also use Program 1 from last month's article, with the same SYS address as in Program 2 above, and the same key definition.

Program 3 is a short BASIC program which will call the graphics copy routine, display the copied graphic on the 8563 screen without introducing garbage, and then return the computer to normal - all with minimum input from the keyboard. Type it in and save it, using your own filename. To use it, just open a graphics area (e.g. GRAPHIC 1,1), write your BASIC 7 graphics commands in direct mode so that the picture is written to the VIC screen "behind the scenes" and then RUN.

Alternatively, write a program which generates images on the VIC screen according to your requirements, and incorporate Program 3 into it as a sub-routine.

When you've tired of admiring your handiwork, hit any key and the computer will be restored to normal with your BASIC and m/l routines present and intact, ready for further experimentation.

Well, that's about it for this month. While there is much room for improvement in Program 1, it should nevertheless suggest all sorts of possibilities to you. Try capturing a hi-res graphic from a 64 graphics program such as *Doodle* and transferring it to the 8563 screen. Maybe do the same with a GEOS screen.

If you're a more accomplished programmer, maybe you could work out a way to graphically represent data, such as sports scores or class results, etc. Over to you. Have fun!

Bibliography:- *C-128 Programmers Reference Guide*, Bantam Books. *C-128 System Guide*, Commodore Electronics Limited. *Your Commodore*, January 1988, Argus Specialist Publications.

01800	20	B3	18	JSR	\$18B3	01866	20	75	18	JSR	\$1875
01803	A2	19		LDX	#\$19	01869	20	8F	18	JSR	\$188F
01805	A9	80		LDA	#\$80	0186C	20	A9	18	JSR	\$18A9
01807	20	77	18	JSR	\$1877	0186F	C6	9B		DEC	\$9B
0180A	A9	20		LDA	#\$20	01871	D0	B0		BNE	\$1823
0180C	85	FB		STA	\$FB	01873	60			RTS	
0180E	A9	00		LDA	#\$00	01874	00			BRK	
01810	85	FA		STA	\$FA	01875	A2	1F		LDX	#\$1F
01812	A2	12		LDX	#\$12	01877	8E	00	D6	STX	\$D600
01814	20	77	18	JSR	\$1877	0187A	2C	00	D6	BIT	\$D600
01817	E8			INX		0187D	10	FB		BPL	\$187A
01818	20	77	18	JSR	\$1877	0187F	8D	01	D6	STA	\$D601
0181B	A9	00		LDA	#\$00	01882	60			RTS	
0181D	85	B1		STA	\$B1	01883	18			CLC	
0181F	A9	19		LDA	#\$19	01884	A5	FA		LDA	\$FA
01821	85	9B		STA	\$9B	01886	69	08		ADC	#\$08
01823	A9	07		LDA	#\$07	01888	85	FA		STA	\$FA
01825	85	9C		STA	\$9C	0188A	90	02		BCC	\$188E
01827	A9	27		LDA	#\$27	0188C	E6	FB		INC	\$FB
01829	85	FE		STA	\$FE	0188E	60			RTS	
0182B	EA			NOP		0188F	A0	28		LDY	#\$28
0182C	EA			NOP		01891	A9	00		LDA	#\$00
0182D	A2	00		LDX	#\$00	01893	20	75	18	JSR	\$1875
0182F	A1	FA		LDA	(\$FA,X)	01896	88			DEY	
01831	20	75	18	JSR	\$1875	01897	D0	F8		BNE	\$1891
01834	20	83	18	JSR	\$1883	01899	60			RTS	
01837	EA			NOP		0189A	EA			NOP	
01838	EA			NOP		0189B	38			SEC	
01839	EA			NOP		0189C	A5	FB		LDA	\$FB
0183A	C6	FE		DEC	\$FE	0189E	E9	01		SBC	#\$01
0183C	D0	EF		BNE	\$182D	018A0	85	FB		STA	\$FB
0183E	A5	B1		LDA	\$B1	018A2	A5	FA		LDA	\$FA
01840	D0	1C		BNE	\$185E	018A4	E9	37		SBC	#\$37
01842	EA			NOP		018A6	85	FA		STA	\$FA
01843	EA			NOP		018A8	60			RTS	
01844	EA			NOP		018A9	E6	FA		INC	\$FA
01845	A2	00		LDX	#\$00	018AB	D0	02		BNE	\$18AF
01847	A1	FA		LDA	(\$FA,X)	018AD	E6	FB		INC	\$FB
01849	20	75	18	JSR	\$1875	018AF	60			RTS	
0184C	20	8F	18	JSR	\$188F	018B0	EA			NOP	
0184F	20	9B	18	JSR	\$189B	018B1	EA			NOP	
01852	C6	9C		DEC	\$9C	018B2	EA			NOP	
01854	D0	D1		BNE	\$1827	018B3	A9	00		LDA	#\$00
01856	A9	01		LDA	#\$01	018B5	85	FC		STA	\$FC
01858	85	B1		STA	\$B1	018B7	A9	3F		LDA	#\$3F
0185A	4C	27	18	JMP	\$1827	018B9	85	FD		STA	\$FD
0185D	EA			NOP		018BB	A2	19		LDX	#\$19
0185E	A9	00		LDA	#\$00	018BD	A9	80		LDA	#\$80
01860	85	B1		STA	\$B1	018BF	20	77	18	JSR	\$1877
01862	A2	00		LDX	#\$00	018C2	EA			NOP	
01864	A1	FA		LDA	(\$FA,X)	018C3	EA			NOP	


```

018C4 A9 00 LDA #$00
018C6 A2 12 LDX #$12
018C8 20 77 18 JSR $1877
018CB E8 INX
018CC EA NOP
018CD EA NOP
018CE 20 77 18 JSR $1877
018D1 A9 00 LDA #$00
018D3 20 75 18 JSR $1875
018D6 C6 FC DEC $FC
018D8 D0 F7 BNE $18D1
018DA C6 FD DEC $FD
018DC D0 F3 BNE $18D1
018DE 60 RTS

```

PROGRAM 2

```

00C06 A2 19 LDX #$19
00C08 A9 47 LDA #$47
00C0A 8E 00 D6 STX $D600
00C0D 2C 00 D6 BIT $D600
00C10 10 FB BPL $0C0D
00C12 8D 01 D6 STA $D601
00C15 4C 0C CE JMP $CE0C
00C18 00 BRK

```

PROGRAM 3

```

10 SYS 6144
20 GETKEY A$
30 SYS 3078:SCNCLR
40 END

```

Colour your life

Andrew Baines explores one of the last frontiers left in the '64 -

Extended Background Colour Mode

THE HUMBLE Video Interface Chip is one of the chips largely responsible for the Commodore 64's huge success. This, in turn, is due to the huge number of different graphic modes it makes available, at the flick of a bit. Extended background colour mode is one mode that most new users haven't heard about, in the mad scramble to learn about the capabilities of their brand new computer.

Usually, we can control the colour of each individual character, and the border, and the background. There are ways, of

course, of using raster interrupts to obtain multicolour backgrounds. However, these, on the whole, are limited to lines of text, and cannot change the background colour behind the individual character. Which is where the VIC chip, perhaps unusually, comes to the rescue.

When turned on, Extended Background Colour Mode (EBCM from now on) can display four different background colours behind your characters. But, true to all computers everywhere, there is a trade-off. The trade-off this time is you can only display one quarter the amount

Screen Codes	Bit 7	Bit 6	Total	Background Colour Register
0-63	0	0	0	53281
64-127	0	1	1	53282
128-191	1	0	2	53283
192-255	1	1	3	53284

Table 1

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of characters. i.e. 64. This covers the bare essentials only - the alphabet, the numbers, and an assortment of others. Why one quarter? We can now display four different coloured backgrounds, with no limit as to where they are on the screen.

The way it's done, is to use the sixth and seventh bits of the character as indicators of which colour you want. Then the computer uses this information to put certain background colours in the required positions. These colours are set using the locations from 53281 to 53284. To use these colours, you must be careful as to which number you give the computer (add 64 for each background colour - 53283 - third colour - add 64*3). In the program below, the character is stored in memory, as is its colour. This is not necessary, as we shall see later, but makes the program easier to write. Table one shows the relationship between the characters and the background colour locations.

To turn EBCM on, POKE 53265, PEEK (53265) OR 64. To turn EBCM off, POKE 53265, PEEK (53265) AND 191.

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```
100 print"S":rem clear screen
110 poke53265,peek(53265)or64
120 rem turn extended background colour
mode on
130 poke53280,0:rem border colour-
black
140 poke53281,0:rem background #1-
black
150 poke53282,1:rem background #2-
white
160 poke53283,2:rem background #3-red
170 poke53284,5:rem background #4-
blue
180 rem ** background colour #1 **
190 poke646,2:rem character colour-red
200 fori=0to63:poke1024+e+i,i:next
```

This line pokes the characters onto the screen. The next line pokes the character colour into the colour memory. The variable 'e' that is used throughout the program accounts for screen formatting: since there are only 64 characters to be printed, and 80 spaces to be filled in two lines, we must add 16 every time to compensate.

```
210fori=55296+eto55296+e+63:pokei,
peek(646):next:e=e+16
220 rem ** background colour #2 **
230 poke646,6:rem character colour-blue
240
fori=64to127:poke1024+e+i,i:next
250
fori=55296+e+64to55296+e+127:pokei,
peek(646):next:e=e+16
260 rem ** background colour #3 **
270 poke646,4:rem character colour-
purple
280 fori=128to191:poke1024+e+i,i:next
290
fori=55296+e+128to55296+e+191:pokei,
peek(646):next:e=e+16
300 rem ** background colour #4 **
310 poke646,7:rem character colour-
yellow
320 fori=192to255:poke1024+e+i,i:next
330
fori=55296+e+192to55296+e+255:pokei,
peek(646):next
340 print"sqqqqqqqqqq":end
```



Note - line 100's print statement is a shift/home, line 340's one home and 11 downs.

The above program, when typed in, saved, and run, gives an idea as to what can be done. The experienced Machine Code programmer could probably come up with a raster interrupt program to change the background registers halfway down the screen, for even more variation. Or, four times, giving the impression of sixteen different background colours.

To obtain these different background colours in our BASIC programs, we have to use combinations of shifted and reversed characters. Below is a table showing how to obtain these characters using the PRINT statement.

Screen Codes	Shifted	Reversed
0-63	No	No
64-127	Yes	No
128-191	No	Yes
192-255	Yes	Yes

If you have any suggestions for new programs, or would like to see an article on a specific subject appear in the Australian Commodore and Amiga Review, send your ideas to:

Andrew Baines
18 Roma Avenue
Wallacia N.S.W. 2750

I hope you have fun using Extended Background Colour Mode, and make some weird and wonderful screens using your own character sets! ■

Adventurer's Realm

by Michael Spiteri

Howdy folks! Welcome to the Realm, Australia's only adventure column for Commodore computer users.

The Post Office department

IF YOU ARE stuck in any game, etc.), so I will only reply to mail that I write to the Realm. If you can help in any game, write to the Realm. If you want to debate the debate, write to the Realm. If you want to say anything about adventure games, write to the Realm.

Because writing for the Realm is not my full-time job, I cannot answer every single letter I receive (I'd love to, but I would also like to eat, sleep, socialise, clearly.

Things to remember when writing to the Realm.

1) Print your name/nickname and address

2) Print the date of the letter.

3) If you have a problem in the game:

a) Give me the name of the game,

b) The exact location name.

c) The exact problem.

d) Enclose a stamp or a stamped address envelope.

4) Make the letter clear (I have no objection to typed letters.)

The famous address is:

Adventurer's Realm
1/10 Rhoden Court
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Realm's free hint sheets

THE FOLLOWING hint sheets are available. Please only ask for the ones you really need.

Neverending Story Pt1, Hitchhiker's Guide (These are copies of previous Realm specials)

Zork I,II,III (Specialised Realm hint sheets)

Castle Of Terror, Hobbit, Lord Of Rings, Hampstead (Specialised SLM Publishing hint sheets).

❖ Wanted ❖

Custom made hint sheets

IF YOU HAVE recently completed a game not listed above, why not make a hint sheet for it and send it to me - you'll be putting a whole heap of adventurers on the right track!



Good news about Infocom games ♥♥♥

IN THE MAY ISSUE of ACR, I said that I had heard that Questor, the games and entertainment department of Imagineering, were no longer importing Infocom games from the States. Tim Allison of Questor says that this is not so. The good news is that it is bringing new Infocom titles into Australia.

Description	C64 RRP	Amiga RRP
Mastodon vs Blubberman	24.95	-
Gamma Force	24.95	-
Nord and Bert	24.95	-
Station Fall	39.95	49.95
Beyond Zork	39.95	49.95
Sherlock	39.95	49.95
Broderzone	39.95	49.95
Lurking Horror	39.95	49.95
Plundering Hearts	39.95	49.95
Zork Trilogy	49.95	59.95

These fantastic titles can be expected over the next couple of months. Infocom will live again!

The Realm - live over the telephone

NO, I'M NOT TALKING about the hotline. If you own a modem then you can have access to the Realm's Super Database via specialised bulletin boards. There will be one in each state.

The first bulletin board to have exclusive rights to the database is Down Under BBS in NSW. They should have the database operational in a few months, however it always pays to check. Logon now, their phone number is (02) 674 6647.

If your BBS would like to have exclusive rights to the database, and is located in a state other than NSW, write to me giving all your info (number of users, hours, etc.)

Another free service offered by the Realm. All it will cost you is the price of a phone call.

Realm's debate centre

THE DEBATE ABOUT mazes got off to a good start last month, and response to the subject has been amazing. Here are some more opinions received between April 1st - May 13th:

"On the subject of mazes," writes Lachlan Gemmell, Engadine, NSW, "I think they should be included if the way through is able to be found out in the game, say written on a scroll or something like that. This information should be hard to find, not just lying on the floor in the first area."

MS:- This is a great idea! Infocom use this method in Hollywood Hijinx. In this there is a massive hedge maze, however there are also two sheets of paper lying around elsewhere in the game. The sheets mean nothing by themselves, but bring them together and you have a clear solution to the maze. This makes maze

solving much more interesting!

Peter Davies writes: "I like mazes, even though some have nearly driven me crazy. I am an Infocom adventure game devotee, and I think that mazes are an integral part of the game." And David McKinney, who absolutely blasted mazes last month, has a sudden change of heart.

"They are all right, as long as there is some slight thread for an adventurer to catch onto. The mazes in *Classic Adventure* were fair because there were enough objects for one to be dropped in each location - from there, mapping is easy. (MS: Yeuch! What a painful concept!).

"The forest in *Dracula Pt3* was a little harder but gave more joy to solve, on the other hand, mazes such as in *Dracula Pt2*, where there is a limit on how long you have to get in and out (before

you die), are no fun at all, only frustrating."

Michael J. Walsh writes. "If they are too big to map by dropping objects, rip the stupid things out."

MS:- There you go, folks, Dracula gives example of both good and bad mazes! I'm not too keen on this idea of dropping objects, it is very time wasting and tedious.

Peter Rice of Sutherland, NSW agrees with Lachlan and myself. "I think mazes in adventures are fine so long as a "map" or something of that nature is hidden in the adventure before you get to the maze."

Finally, Fuzzbucket (!) of Forbes, NSW has the following to say on the matter.

"I think mazes stink!" Nuff said, until next month, that is. ■

Realm chit-chat

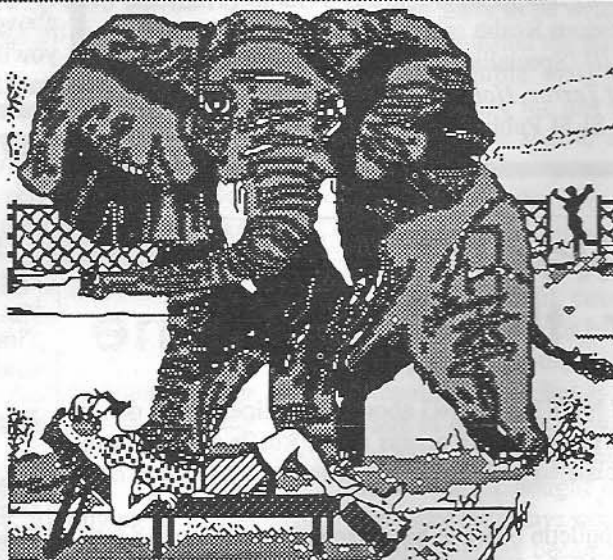
Bernard Gianetti writes:

"A couple of months back you were talking of a Realm Help Booth in Sydney, hopefully on the North Shore near Chatswood (hint hint), but I haven't heard anything since. Please enlighten me!"

MS: The Sydney help will be operational for a couple of days, hopefully before Christmas, but we still have not found a suitable location. Hopefully, I can give you something official in the July issue.

Chris Coombes writes: "I would like to disagree with the Australian Adventure Masters (Oct 87). I have an Apple IIc and the Apple version of the *Pawn* does not have any graphics and so far I believe it to beat most adventures I've seen with or without graphics."

MS: Well! It's about time someone complimented The Pawn. It may have received a lot of publicity, but so should every game that has had so much effort put into producing it.



Beyond Zorker of the Month

JUST BECAUSE WE had no Zorkers the last two months, doesn't mean the end of this very prestigious award. So you think by not asking me for tips for any of the four Zorks you are safe! Wrong. In fact, people who solve the games are also in the running. Yes, Andrew Phang, YOU have become Zorker of the Month for sending me the solution to a game I haven't even SEEN or PLAYED! Only a Zorker would be so cruel. ■

Smart adventurer's department

To: Red Dog (Apr Issue)

From: Michael Walsh

Game: *Rigel's Revenge*

Help: Once in the desert location with the bone, get bone, follow tracks and you will find yourself back on the town perimeter. To get through the window, examine sink, get medikit, wear medikit, u, bend bar hard. If you are feeling weak, press green button, now press red button, push bar up, remove all objects except goggles, and throw all out window. Get all, wear medikit.

When you begin to feel drained you must press green button. There is no way out of the net - it is game over! To get past the tank you have to find the mound of rubble east of park and climb mound, drop bone, wait, u, w, s. You can now move se or sw around tank.

To: Andrew Phang

From: Suzanne Parkes

Game: *Guild of Thieves*

Help: In the cemetery collect yew berries (for macaw). To remove the rats in the cellar, vandalise pipes and flood it.

To: Red Dog

From: Suzanne Parkes

Game: *Rigel's Revenge*

Help: You can't charge the gun until part 2.

To: Scott Edwards

From: Gunars Berzins

Game: *Necris Dome*

Help: To use the thermo-plas-suit, enter SPRAY SUIT.

Adventurer of the Month

Andrew Phang has worked hard to achieve this award, in fact, he's gone to all the trouble of solving *Beyond Zork*. Probably the first in Australia to do so. Congratulations, Andrew! Some tips for this game are printed elsewhere in the Realm.

Troubled Adventurer's Department

Following the April issue, I think I received the largest amount of mail ever (between 5 - 15 letters a day!) So if you received a late reply during May, that is probably the reason why. Anyhow, a majority of those letters were from very troubled adventurers. If you can help any of these people out, please do so, or they'll keep writing back until they are relieved from the pain.

This problem should have gone in the May issue, but for some reason it didn't quite make it (I'll just say it was swallowed by a grue and I fought endlessly risking my own life to retrieve it - and I succeeded!) Actually, the game Brad Stamford is stuck in is *Quest For The Holy Grail*. Apparently Brad seems to be just going around in circles. Any Holy Grailers willing to help Bradley out?

After many months Gunars Berzins (Yagoona, NSW) has left the little room that contains his Commodore and put pen to paper with enough problems to trouble a Zorker.

He starts off with *Pyjamarama*. Apparently there is a magnet used to deactivate a lock, but where is it?

Then we jump to *Necris Dome*. Where does he use the Blue Trans-rod? How do you deactivate the re-energiser pads in the Reception Level?

Then to *Kentilla*. Where is the key to the chest? How do you beat the great tentacle?

Gunars then caught a spaceship to *Rebel Planet*, where he is having difficulty with using a phone booth. Digging a hole, he gets to the game Core and he asks what the co-ords are for teleporting.

Then finally to *Ti Na Nog*. How do you pass Nathair in Ceardach Calum? Where is the crown, and what objects do you need to open the doors o x n u c f? Can anyone put Lord Gunars out of his misery and send him back to his little room?

John Fulton sent me a rather alarming letter literally ordering me to print the solutions he enclosed (which I can't because it's against Realm's policy). I will print his maps (of *Never Ending Story*) in a future issue. Anyhow Mr John "Do this or else" Fulton is stuck in *Lord of the Rings Pt1*. He writes:

"In the October issue you printed a map of *Lord of the Rings Pt1* which indicates two elfstones in the lake. I can't find them! I need three to destroy the black riders but I only have one. I can get all the elfstones printed on the map except these. Please help."

By the way, David McKinney finally discovered how to excavate in the *Helm* (after 20 months - when the Realm was only a baby!) Now that's what I call determination! It beats my record of taking over one year to work out how to solve *Deadline*.

Now onto something more important. John Forsythe of Mt Martha in Victoria is stuck in a few games.

In *Red Moon*, how do you breathe under water?

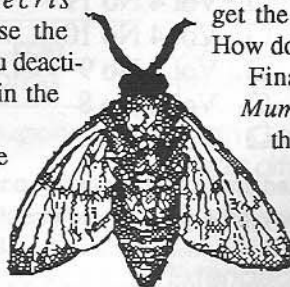
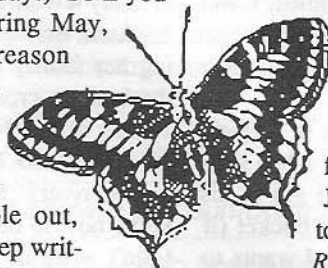
In *Colossal Adventure* a) how do you get the pyramid out of the cave? b) How do you get past the spider?

Finally, in *Case of the Mad Mummy*, how do you escape from the room with the coffin?

Robots of Dawn is giving Judy Cushway of Athelstone (SA) many great parmucles. How can she open the safe, and how can she get into

the buildings?

Ex-Zorker Suzanne Parkes has left her current job to become a thief in the *Guild of Thieves*. She cannot get across



the coloured squares in the black square room. Any squareheads out there willing to help Suzanne?

Don Davidson Mk II (!) is not having a good time in *Merry Christmas*. "I am stuck with the toys near the sleigh inside. How do I get out? How do I get the boots if I can get the coat?"

Then to *Spiderman* which is also causing Don some brain troubles. "Can't get started as the other characters are in the way. Also can get lift open but can't get up the lift."

Brad Goyen of Hurstville is playing the adventure *Shard of Inovar* when suddenly some Naslava (nasties) got in his way and helped him kick his bucket (if you know what I mean). Brad wants to complete this game alive, so help him out, please!

Bill Beggs of Werribee feels somewhat rudely uninvited in the game *Uninvited*. A particular unpleasant Red Demon has a key which might be of some use to Bill if he knew how to obtain it. Then there is the lady who also helps Bill kick the bucket when he tries to pass her. Who is game enough to help Bill

beat the Demon and the Lady?

Everyone knows about the Pro-Packs Commodore is flogging in every store across the face of the Earth, and those of you who indulged in this delight may be aware of the existence of a few adventure games on one of the sample diskettes. One in particular being *The Temple Curse* is causing considerable problems to many novice adventurers.

Anne Barnes (Monash, ACT) is driving her family bananas trying to get in the boat to cross the pool. I think Mrs Walker of Nth Nowra has the same problem. "How do I get across the underground river?" Mrs Walker also wants to know how to decipher the hyroglyphics (don't write in and complain about the spelling). Mrs Walker also wants to know how to get out of the plane in *Island of Spies*.

And we have three *Bard's Tale* problems (the Realm wouldn't be the same without them). Owen Wallace is battling the Bard with these problems:

- How does he cross the teleport on the second level of Harkyn's Castle?
- How does he enter Kylearan's tower?

c) What is the significance of the silver square?

Gino Ferraro of Mt Gambier is stuck in *Faery Tale Adventure*. So far he has four statues (from sorceress, forest, Sea Hold and Marheim). Where is the fifth one, he asks? How does he get to the spirit plane? Where is the short tunnel in the hill leading to the unexplored wilderness? How does he get in the Citadel of Doom? And what is the purpose of the wand, blue stones and sea shell?

Fuzzbucket is stuck in *Drak*. After getting past the man-eating plant, how do you get the key into the door to unlock it?

Last but not least, Bernard Gianetti wants to know how to use the 58th spell in the game *Phantasie 1*.

Important notice

There is another section in the magazine that deals with problems in Arcade Games (pokes, and stuff like that.) Please don't send them to me, cos I won't answer them or print them!

No way am I listing pokes for *Space Invaders* in this column.

Australian Commodore and Amiga Review Back Issues

The following back issues are still available
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General hints and tips

Hollywood HiJinx: Cover the matches with wax so they don't get wet.

Rebel Planet: Tap crystal with fork to gain entry to the University. Bend cell bars with the wrench.

The Helm: Use spectacles to burn the haystack to reveal the needle. Picking the castle lock should open the door.

(Above tips supplied by Clement Alexander, Willetton, WA)

Beyond Zork

-Look into the grey sphere for a magic word.

-For good luck, rub the rabbit's foot.

-Squeeze moss for dexterity

-Use the bottle to read the amulet.

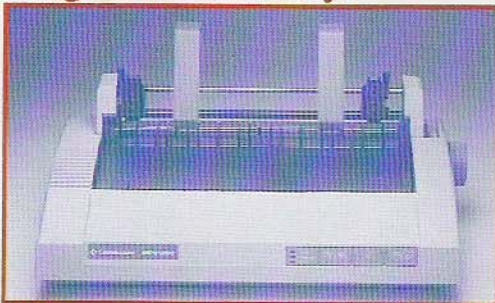
-Sharpen the axe with the honing spell and axe the puppet.

(From the solution supplied by Andrew Phang).

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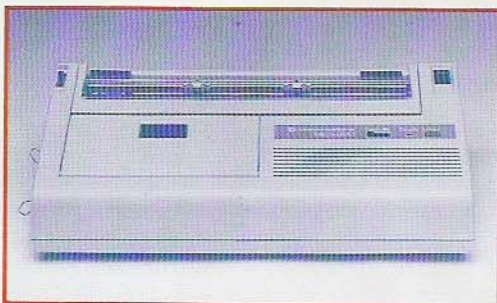
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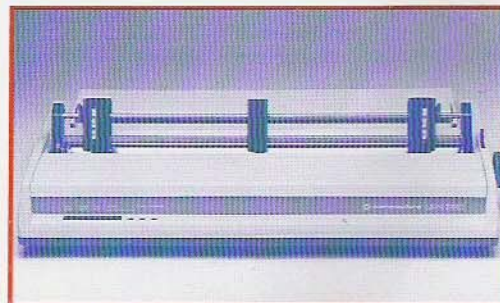
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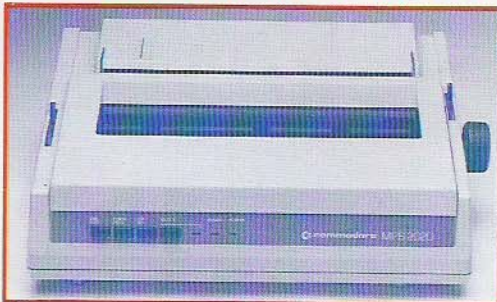
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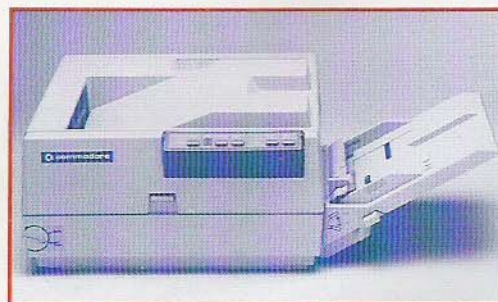
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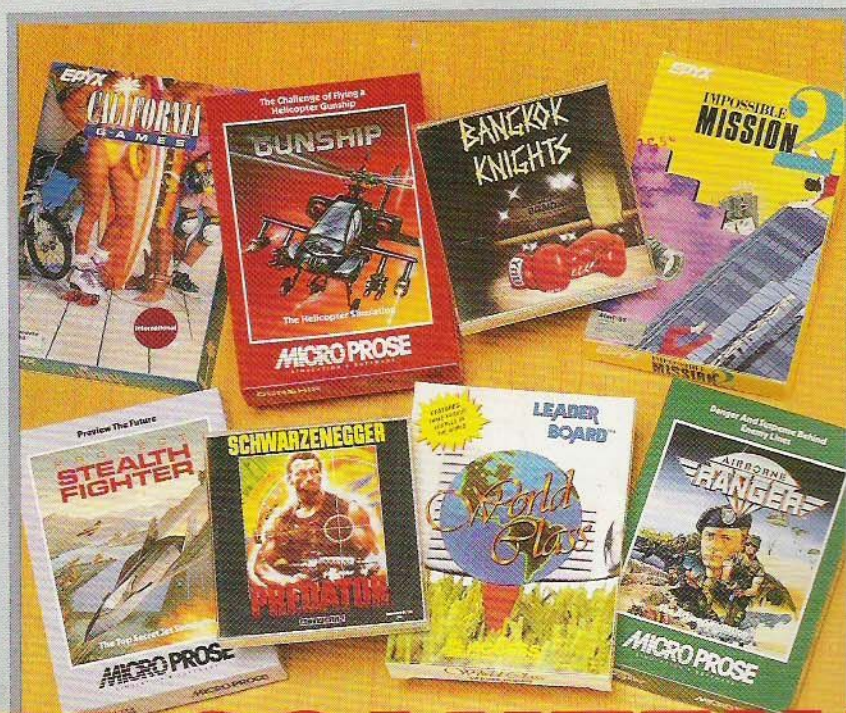


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